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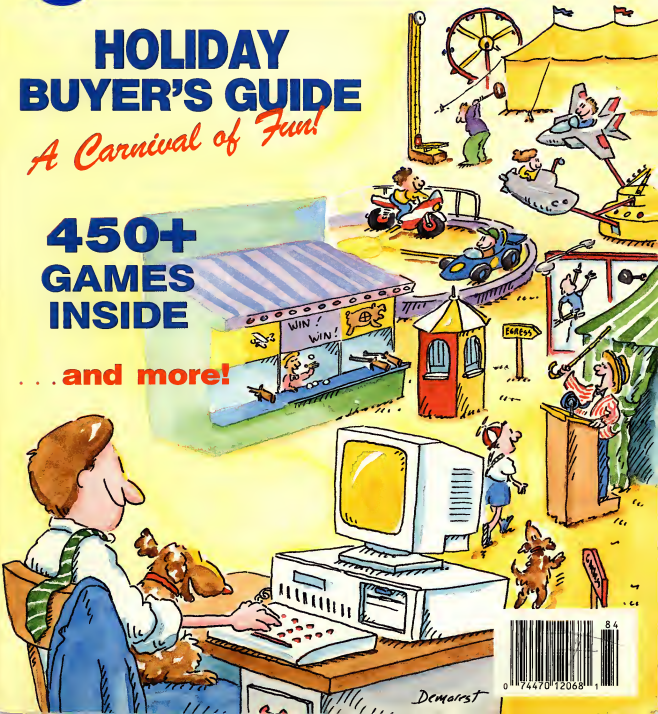
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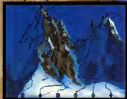
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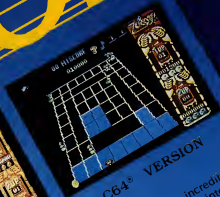
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PC GAMES

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step right up

THE ADVENTURE THAT STARTED AN AVALANCHE

Step into a diverse and colorful world of unbounded imagination—the world of computer games.

Back in the days when computers were the size of small buildings and were used only for "serious" calculations, a new direction for computer software began to occur. Many technicians and programmers who worked with these machines didn't necessarily see what they were doing as mere work—sometimes computers could be fun. They would write small mathematical programs that played tic-tac-toe or guessed a number. Everyone thought these little programs were neat, and they would make copies and spread them around to other computer users.

Eventually these games became more complex, asking the user questions and responding in different ways, depending on the information supplied. Probably the best known of these early games was *Adventure* (sometimes referred to as *Colossal Cave*).

Adventure was a game of exploration. The player was presented with a location and a brief description of what was within view. The program then waited for an instruction, such as "Go north" or "Get object." If you used one of the allowed responses, the program carried out the instruction; otherwise it would tell you it couldn't do that action or that it didn't understand. This very simple communication system, called a *parser*, was a subroutine inside the program that would break down what the user typed, determine the action to perform (such as "Go" or "Get"), and the place or thing to use the action on (such as "North" or "Object").

Adventure became extremely popular, and versions of it were created for nearly every operating system available. In fact, it was so popular that it began to overload many com-

puters (especially those on college campuses) because too many people were playing it all the time. Rules were soon developed that restricted game playing during peak usage hours. This meant you had to stay up very late at night to get on the system and play a game, causing more than one student to be exhausted during the next day's classes.

The descendant of *Adventure* was *Zork, the Great Underground Empire*. Where *Adventure* was a simple game with a couple of dozen locations, *Zork* was immense, with detailed descriptions of hundreds of locations, objects, and puzzles. This game could not be mastered in a few hours (people often played the game for weeks). It also brought a new level of complexity to the language parser. *Zork's* parser understood complete sentences such as "Kill the thief with the knife."

When microcomputers with a reasonable amount of memory and computational power appeared, the first games for these machines were, of course, adventure games. Some were converted directly from the main-frame computer world, but many were original programs developed strictly for use on micros, and they were not intended to be shared freely but to be sold as entertainment for this new generation of personal computer users. The entertainment software industry was born. Today it is the largest single class of computer software in existence.

CONCURRENT DEVELOPMENTS

While many people were busy playing text adventure games, electronic entertainment technology began to take shape. The first graphical arcade game arrived. Pong, developed by Nolan Bushnell, began appearing in bars and pinball arcades.

CHUCK WESTON
Editor

BUD SADLER
Managing Editor

LYDIA VEALE
Assistant Editor

LOU ANN MORIN
Art Director

JIM MCBRIAN
Publisher

WILLIAM J. SMITH
Associate Publisher

RIC LARSON
National Sales Director
(800) 441-4403
(603) 924-9471

JANET CALHOUN
Advertising Coordinator/
Business Manager

DENNIS CHRISTENSEN
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In Pong, a game of table tennis was simulated with a simple cursor of light. An extremely basic concept, Pong was also incredibly successful. It wasn't long before the Japanese entered the arena with Space Invaders, which made Pong quickly fall by the wayside. I can still remember the long lines of university students waiting to play Space Invaders at the local on-campus pub.

Nolan Bushnell and associates (now Atari) began to develop more and more arcade games. They became more sophisticated, and with many other companies getting into the act, the industry became more competitive. It didn't take long before home video game machines started to appear. You simply plugged in a cartridge and you had a wonderful new game to play. Millions of these devices were made.

About this time microcomputers were beginning to appear, with names like Apple, PET, and TRS-80 Model 1. Their owners were hungry for games to play on their expensive "powerhouse" personal computers. While adventure games were the first to show up (how many of us spent evenings playing Scott Adams adventures?), remakes of what are now classics, like Pong and Space Invaders, soon followed. And soon the microcomputer game developer was creating new concepts, not merely borrowing from old ideas.

THE TIP OF THE ICEBERG

In 1981 the first IBM PCs rolled off the assembly line, and the business world took notice. These 64K (expandable to 640K) computers were just what the office needed for word processing, calculating spreadsheets, and manipulating databases. But with monochrome text displays, they were not suitable as game machines. Why should they have been? After all, serious computer users don't play games, do they?

As time went by a few games appeared for MS-DOS machines. Graphics cards were developed and the games became more sophisticated. PCs with improved speed and memory became commonplace. Games took advantage of the new technology with improved simulations.

Graphics adapters such as IBM's EGA soon became the standard. And most importantly, inexpensive clones of the IBM PC began pouring into the market. Surprising almost everyone, MS-DOS-based computers were becoming home computers.

All of this hasn't gone unnoticed by the publishers of entertainment software. In the past two years a change has occurred. Instead of making MS-DOS versions of games after versions for every other computer system were done, software developers have started making MS-DOS versions their first priority and versions for other computers afterward. The result for the consumer is an avalanche of games, all types and styles, flooding the market.

Someone once said (in reference to books and stories) that every plot and storyline has already been done, and new books are just remakes of old ones. Some of that may be true in games as well because there are often similar concepts found in many games, new and old. But it is also true that among the hordes of today's games, you can still find something new. The best of this new genre are the multimedia games, combining graphics and sound, music and text, animation and adventure. They give a glimpse into the future of computer games. And I, for one, am excited by it.

Let's leave history behind and step into a diverse and colorful world of unbounded imagination, the world of computer games. Remember when you were a kid at your first carnival? The excitement, colors, and sounds all seemed to overwhelm you. In the following pages we will lead you through the veritable carnival of computer game software, with occasional side trips to the land of technology. When our tour is over, we trust that you will be able to cut through the hype and the hoopla and know what kind of entertainment products you want to spend your hard-earned money on. Welcome to PCGames.



—Chuck Weston, Editor



HOOKED ON GAMES

What is it about computer games that turns ordinary people into wide-eyed zealots?

You play games. Of course you do. It's hard to find a PC system, even in the most pinstriped business office, that doesn't have a game or two tucked into the back of the disk box. (A few games even have a "boss switch," a keyboard command that throws a fake spreadsheet or other red herring onto the screen for those times when Mr. Big suddenly comes in.) If you leave work and have a computer at home, what do you and the kids take turns doing? That's right. Be honest. Might as well face it, you're addicted to games.

But you're not addicted to all games. The early days of computer game history, when players would fall for just about anything—crummy animated blips, simple Pong or Breakout games that fit in 4K of memory and seem prehistoric by today's standards—are long gone. So is the second stage of computer gaming, the video arcade craze of the early eighties, when America swooned for Space Invaders and Pac-Man.

The games that get people hooked these days are all new, written from scratch for personal computers, usually by companies that specialize in nothing else. Instead of buying this month's arcade craze, people make best-sellers out of games that come out of the blue (such as *Mean 18* from a fast-rising young company called Accolade), or even out of the red (Spectrum HoloByte's *Tetris*, a solitary puzzle from the Soviet Union).

What do these games have in common? Lively action, sophisti-

cated sound, snazzy graphics—and something else, something hard to put your finger on. What's the key to enjoying a game over and over? What makes a game addictive? There are as many answers to that as there are high scores in the Hall of Fame. Let's look at a few of them together—but first, put this magazine inside a copy of *Business Week* in case the boss comes in.

SPECIAL INTERESTS

Some compulsive game players are easy to analyze: They get caught up in one category or genre of games, like readers who thrive on British mysteries or bodice-ripping romances. Other articles in *PCGames* examine some of these categories, such as sports games for keyboard jocks who can't get enough of baseball, golf, or football, or vehicle simulations for people with an urge to pilot a Sopwith Camel or Lamborghini Countach.

Many games let you enter a different world, with its own laws, inhabitants, and history. This may be the world of history for fans of strategy games and combat simulations, who can spend hours planning troop movements and supply lines to change the outcome of El Alamein or Gettysburg. It may be the literary world of interactive fiction or text adventures, where you are the main character of a story whose events and outcome depend on your actions. Infocom's *Sherlock: The Riddle of the Crown Jewels* not only casts you as Dr. Watson but makes you do all the work for Sherlock Holmes. The same firm

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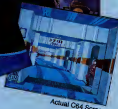
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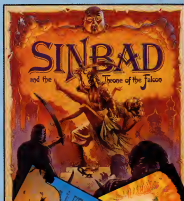
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crystal ball

can also put you in the middle of a Stephen King-style nightmare, *The Lurking Horror*, or a science fiction spoof, *The Hitchhiker's Guide to the Galaxy*.

For those into a specific kind of imaginary universe, fantasy role-playing games offer a never-ending opportunity to explore weird worlds, controlling assorted casts of characters—wizards, warriors, thieves, or priests—who acquire strength and wisdom as well as treasure. Fantasy game makers' most brilliant, addictive idea is the appeal of transporting your personal characters, saved on disk, from one game into another, to meet continuing twists in familiar storylines.

Instead of releasing a predictable fourth scenario for *Wizardry*, Sir-Tech's designers cast players as the archvillain they'd struggled to conquer in previous *Wizardry* games. Sequels aren't limited to the fantasy genre, of course. Sierra On-Line's comic *Space Quest* led to *Space Quest II* (featuring the invasion of the pushy insurance salesmen). After Broderbund's first geographic educational mystery, *Where in the World Is Carmen Sandiego?*, the glamorous master criminal struck again (*Where in the U.S.A. Is Carmen Sandiego?*) and again (*Where in Europe Is Carmen Sandiego?*). Jail cells can no more hold her than Houdini.

GAME DESIGN HIGHLIGHTS

There's no one recipe for an irresistible computer game, but there are lots of nice touches that can keep players coming back. Simulations, for example, should be realistic, not only in terms of what they let you do—control a race car's brakes and gearshift, or trade for a new pitcher while managing a pennant race—but also in terms of what they don't let you do.

A real race car doesn't drive like a go-kart or like a puck on an air

hockey table. A flight simulator should have a slight delay in its control response, instead of letting you do snap rolls in a 747. A golf game that lets you sink 60-foot putts once in a blue moon is terrific, but one that lets you knock them in every single time is boring.

There are games that you can play for hours and days without seeing anything different, except maybe a new number on the scoreboard. It's far better to play a game that rewards you every so often, that gives you an on-screen promotion from Novice to Ace to Legend, or at least keeps up a variety of comments and messages.

It's also fun to beat a game that gently jeers your defeats, to suffer the taunt of Accolade's *Test Drive*, "You drive too slowly to deserve a sports car," then roar through your next run to earn the laconic praise, "You were cooking." Indeed, failure can be a game highlight. The best part of the old arcade hit *Dragon's Lair* was the heroic knight's response when you clumsily killed him off—he'd give you a disgusted, accusing look for a moment, while turning into a collapsing skeleton.

PLAIN OR FANCY?

Just as some folks can shun chocolate but can't resist pasta, different players have different theories about game allure. Some say the most addictive games, the ones most likely to make people play too long, are the most complex. These games give people the most to discover, offering more depth or more varied events, messages, and challenges. Fantasy games provide endless variations on their central themes. A football game should give you a dozen of offensive options, not just running, passing, or punting.

Half the fun of an interactive fiction game is matching wits with the absent author, seeing how many possible, unlikely, or down-

right silly moves he or she anticipated. Infocom prides itself on this byplay; I once spent a week-end ignoring the serious plot of a murder mystery in favor of examining toilets ("No doubt you are looking for the Ty-D-Bol man, but he is not here.") and jumping off furniture ("Wheee!").

But there's just as strong an argument for the other side—that the most addictive games are the simplest. You can learn to play Activision's *Shanghai* in five minutes (two minutes if you've ever played the game of mah-jongg that inspired it), but its solitaire strategies will keep you absorbed for hours. I've seen my brother-in-law, a normally stable individual, moved to profanity by a software version of hearts, a simple card game; two of his computerized opponents, he says, are easy to beat, but the third keeps slipping him the fatal queen of spades.

Actually, both views are true. Sophisticated games can offer a leisurely exploration of a new world or a detailed, realistic simulation of an experience such as landing at O'Hare or defending Bunker Hill. Simple games can offer a different kind of appeal, a quick diversion that leads to the ultimate game addict's vow: "I'll get it next time." One more try, you tell yourself, and you'll solve this puzzle, make it through this screen, reach the next level, get past the trap door, break par on the next hole. Start talking like that and you're hooked. The game's gonna get you.

And you don't mind, do you? Of course you don't. Might as well face it. Nothing to be ashamed of. I understand. I'd write some more, but there are some things I have to do (on my computer). □

Eric Grevstad is a newspaper columnist and frequent contributor to Portable Computer Review, PCResource, iNcider, and other magazines.

AN INTERVIEW WITH STEVE CARTWRIGHT



“This whole industry is still in its infancy. Five or six years is nothing for an industry, and it’s only going to get better.”

Steve Cartwright, 32, is a senior designer for Accolade of Cupertino, California. Prior to joining Accolade, Steve was a senior game designer at Activision, where he created *Hacker* and *Hacker II*, *Aliens*, *Barnstorming*, *Sea Quest*, and *Frostbite*.

Steve talked to PCGames about his background and the future of MS-DOS games:

“I went to the De Vry Institute of Technology in Phoenix and received a B.S. in electronic engineering, concentrating mostly on hardware. I graduated in 1977, which was really before there was such a thing as home computers or video games. At that time no one ever really considered going into the area of programming home computers.

“After I left college I worked at National Semiconductor for a few years as a design technician in the linear IC division, working on products like op amps, comparators, and regulators.

“I learned programming around 1978 or 1979, when companies like Hewlett-Packard started coming out with programmable test equipment that let us program in tests that we used to perform on the bench manually.

“About that same time a college friend of mine, Dave Crane, was busy founding Activision with a couple of his friends. And when Activision got underway just about a year later, they decided it was time to beef up their internal design staff. The founders of that division all came from Atari, and they believed that hiring experienced programmers and game designers just didn’t work, because programmers were really trained with the idea that they knew what the end result was going to be before they started.

“Programmers sit down and lay out a flow chart and know what the input and output is going to be. But with game design, you don’t know how it’s going to turn out, so it really wasn’t imperative to hire experienced programmers or not—the programming back then was easy enough that anybody could pick it up. So they hired me, taught me the programming necessary, and I started doing video cartridge system games back in about 1981. During my time at Activision, I designed *Hacker* and *Hacker II*, *Aliens*, *Sea Quest*, and a few others.”

CURRENT PROJECT

“It seems like every time I’m working on a game I think that’s the best one. Currently, I’m working on one for Accolade called *Fast Break*, a basketball game. I think I’m more into this than ever before because you get better with each game. So I’d have to say the one I’m working on now has probably the most potential and best playability of any game I’ve done.

“This is my first sports game, but I’ve done graphic adventures and I’ve done action arcade games, so really I can get excited about any game that I’m doing as

by Leon Beaulieu

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crystal ball

long as I do it my way. Here at Accolade we look for games that we think will excite people. Most companies put out ten games, hoping that one will be a hit. At Accolade we're looking for nine out of ten to be hits. How we determine that is really almost as simple as counting the letters in the name. Of course that's not it, but as to exactly how we decide what game to do, we consider it a trade secret.

"As far as the artwork, well, I do a little bit of it, but the artwork in games is getting so sophisticated that we have to have professional artists do the majority of it nowadays. I still go in and touch things up a bit and adjust things that have limitations based on the computer system, but we're relying more and more on professional artists to do the graphic work in games.

"Games are getting so sophisticated now that, depending on the project, there's usually the lead designer and a producer. For example, if the game needs a special sound track, the producer will find somebody capable of doing the music. Or if it needs special artwork, the producer, similar to a movie producer, will bring in the team that's required. And oftentimes if there's any special technical problems, the lead designer might turn over certain tasks to an experienced programmer, like, when he needs a fast disk routine so he won't be spending his own time doing that. He'll work on design aspects of the game and turn over certain technical aspects to the technical people to handle.

"I'd say a sophisticated game needs a lead designer, a producer, a graphic artist, probably a sound specialist, and maybe one or two other technical people. The idea is to make a game that the majority of people like, so in that sense, you're trying to do something that sells the most. And if it sells the most that means that it appeals to a lot of people. There are all kinds of games to work on, so

why not do something that the majority of people want?"

THE MS-DOS MARKET

"With MS-DOS, each game has its own problems. The problem with doing a basketball game on an MS-DOS machine is to be able to get enough players to move around quickly to simulate basketball. That's the special technical problem with doing a sports game. In other games like flight simulators you have to worry about doing fast 3-D algorithms.

"Right now, MS-DOS is the second largest market and growing. And if you go by past history, the top game machine has always stayed in first place for around four years. For example, the Atari VCS lasted about four years and then died off. Then the Commodore 64 came on the scene—and right now it's about three and a half years into its popularity cycle, so we look for the Commodore to start slipping away gradually and MS-DOS to start picking up. When MS-DOS becomes the most popular game system it will probably last about four years.

"I try not to let graphics resolution enter my mind when I design games. If I start off worrying about the limitations, thinking, 'Well, with CGA I can only use four colors. I'd better do a game that doesn't have too many colors,' the end result usually isn't as good as if I said, 'Okay, I don't care how many colors I use, I'll just design the best game possible.'

"So I try to keep those limitations out of my mind when I'm designing, and if I come across something that currently can't be done because of special machine limitations, I try to figure out a way around it.

"But working with CGA, for example, which only has four colors, I find that if I do all the artwork in as many colors as I can and then convert it down to four, it turns out better than if I started out doing the artwork in only four colors. In other words, if you can

go ahead and use 32 colors, you tend to put in all the shading and graduation in the colors, and when that converts down to four it tends to work out better than if you start off thinking, 'Well, I only have four colors to work with.'

"As far as memory requirements are concerned, I usually try to cater to what most people in the marketplace have. Currently I use 384K as the standard for MS-DOS games and try to design a game to fit within that limitation. I also have to take into consideration things like hard disks. If it turns out that 90 percent of the people have hard disks, I'd probably start doing games that require a hard disk. In my current design, the hard disk certainly will speed up the game, but I try to design so that I don't eliminate a large section of the marketplace with special requirements like that."

COPY PROTECTION

"It seems like more and more companies are using off-disk copy protection, with a decoder wheel or looking up numbers on charts or something like that. Or you have to have the instruction manual in order to play. This is because more and more people want to install their games on a hard drive. So we probably still need some type of copy protection, but the trend is moving away from on-disk copy protection.

"This whole industry is still in its infancy. Five or six years is nothing for an industry, and it's only going to get better. The limiting factor is the life cycle of the machine, generally around four or five years. As a designer, it really takes that long to get good on a machine. You really don't start stretching the limits of the machine until your third or fourth project, which takes three, four, five years. And by that time new hardware comes out and you have to start all over again." □

Leon Beaulieu is a freelance technical writer and avid game enthusiast who got his start in the field of oceanography.

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AN INITIAL LOOK AT VIDEO RESOLUTION

**RGB, CGA,
EGA, VGA:
Here's a
layman's
guide to the
abbreviated
world of
graphics
standards.**

Some computer owners are better game players than others. So are their computers. The key to your computer's game potential is its video display. The MS-DOS world has half a dozen video options to choose from and a bewildering array of abbreviations for them. This article will help you make sense of abbreviations like RGB, CGA, EGA, VGA, and MCGA.

MORE COLORS, MORE PIXELS

Computer displays are made up of little colored dots, just like the Sunday comics. These dots, called *pixels* (short for "picture elements"), turn on or off or change color to show different images. The 50th pixel in the 75th row, for example, might change from part of a blue sky to part of a passing white cloud. The more pixels there are, the sharper a display's resolution; a grid of 640 by 350 pixels makes for clearer images than one of 320 by 200.

Not only do game players want higher resolution, they want more colors. A display that can merely turn each pixel on and off is less attractive than one that can assign each pixel one of 4, 16, or 256 colors. Another factor is the *palette*, or total number of colors available. A common low-resolution standard allows a maximum of 4 colors on any one screen, chosen from a palette of 16 possible colors.

Some computers have video circuitry (a port to plug in a display screen or monitor) built in; most allow a choice of video adapter cards, which you plug into one of the PC's internal expansion slots. As the accompanying table shows, graphics cards are growing ever more sophisticated,

showing more colors at higher resolution. Not long ago, 256 kilobytes was an impressive amount of memory for a computer. Today's popular video cards have that much RAM for mapping pixels and colors.

ADAPTERS AND INITIALS

Monochrome displays show colors as shades of green (or amber) on a black background. Despite their good resolution (usually 720 pixels horizontally by 350 vertically), IBM's original Monochrome Display Adapter (MDA) allowed only an 80 by 25 grid of text characters, with no control of individual pixels for graphic images.

The best match for a monochrome monitor is the Hercules Graphics Card (HGC). Many low-cost computers and clone cards boast HGC compatibility, and a modest but growing number of games, especially those apt to appeal to business PC users instead of kids, offer sharp HGC images.

THE COMMON DENOMINATOR

Most game software, however, is written for RGB (red-green-blue) color monitors, and virtually every game supports the lowest common denominator: IBM's old Color Graphics Adapter (CGA) standard. Its fuzzy text characters are inferior to monochrome for business programs, and its graphics are neither very crisp nor very colorful. But CGA is standard equipment on many PCs. You can still have a lot of fun playing CGA games.

A few computers, notably IBM's PS/2 Models 25 and 30 and Tandy's new 1000 SL and TL, feature expanded CGA capabilities. The Tandy can display 16 colors

by Eric Grevstad

where CGA stops at 2 (640 by 200) or 4 (320 by 200), and IBM's MCGA (Multicolor Graphics Array) allows a whopping 256 colors at the lower resolution. The higher resolutions are not generally supported by many software programs, but some game makers are beginning to write special Tandy and MCGA versions.

EGA AND BEYOND

Game makers are already writing more and more EGA (Enhanced Graphics Adapter) versions of programs. While compatible with CGA programs, EGA offers four times as many colors (16 at once, from a palette of 64) and almost double the maximum resolution (640 by 350 pixels with an enhanced RGB monitor). This means that if your computer has an EGA, you will still be able to play games that were written for CGA graphics only; the EGA can duplicate all the modes of the earlier CGA adapters.

The Video Graphics Array (VGA) standard, introduced in 1987 for the IBM PS/2 Models 50 through 80, surpasses EGA with 640 by 480 resolution and an almost endless palette (262,144 colors). While various VGA modes are compatible with the older EGA and CGA standards, there are not a lot of VGA-specific games yet. An EGA adapter is probably the game player's best trump card.

CARDS AND MONITORS

There are a few points to consider when shopping for a video adapter and color monitor. For instance, there are three different kinds of EGA cards. IBM's original low-end EGA had only 64K of on-board memory, which restricted it to 4 colors instead of 16 in 640 by 350 mode. Insist on an EGA with a full 256K memory—or, for a few dollars more, one of the 256K "enhanced EGA" cards made by vendors such as Paradise Systems, Video Seven, Boca Research,

Genoa, or ATI Technologies. These cards offer extra-high resolution (640 by 480 or better) when used with monitors such as NEC's MultiSync II.

A few hot-rodders claim that all the colors and pixels of VGA make

for sluggish screen drawing, even with a fast 80286- or 80386-based computer. For them, vendors such as Paradise and Video Seven offer both 8- and 16-bit VGA cards, with single connectors (for PC or XT slots) or double connec-



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GRAPHICS STANDARDS

Graphics Adapter	Pixels (H by V)	Colors	Palette	Horizontal Scan Frequency (kHz)
MDA	720 x 350	NA	NA	21.85
HGC	720 x 348	Mono	NA	21.85
CGA	320 x 200	4	16	15.7
EGA (std)	640 x 200	16	64	18.5
EGA (enh)	640 x 400	16	64	21.85
VGA	640 x 480	256	262,144	31.5

tors (for faster data transfer, restricted to AT slots).

FINDING A COMPATIBLE MONITOR

Better adapters need better monitors. Both CGA and EGA systems use digital RGB monitors with 9-pin connectors for digital or binary video signals, but EGA requires an enhanced color display that can show 350 instead of 200 lines. More lines means more dots or pixels on the screen for

each frame. (A frame describes a complete set of scan lines creating a new screen image, typically 60 times a second. The more advanced graphics standards rewrite the screen as many as 70 times per second.)

In order to turn the video tube's electron gun on and off more frequently for the higher-resolution graphics standards, the video monitor must have better than average horizontal frequency re-

sponse. CGA scans 200 lines horizontally and requires a monitor that can synchronize to a horizontal frequency of 15.7 kilohertz. EGA scans 350 lines horizontally per frame and requires a monitor that can synchronize to 21.8 kilohertz. VGA requires a monitor capable of synchronizing to a horizontal scan rate of 31.5 kilohertz. In addition, vertical scan rates of the newer graphics adapters can range from 50 to 70 hertz.

Popular multiscanning monitors such as NEC's MultiSync or Princeton's Ultrasync, which adjust themselves to different horizontal output frequencies, cost more but offer maximum versatility and compatibility. With an adapter or 15-pin connector, these monitors can also support the nearly infinite spectrum of analog RGB used by VGA cards and VGA-only monitors such as IBM's PS/2 series or Zenith's flat-screen ZVM-1490. Before you buy, you should consult the manufacturer of the monitor you're interested in to be certain it's compatible with your graphics board.

Finally, what do you do if you want to play games on your portable computer? Some portable computer screens do not lend themselves particularly well to games. The worst offenders are LCD-type screens whose scrolling speed severely limits action-oriented games like vehicle simulations or arcade games. However, some types adapt pretty well to an LCD as long as the action is not fast and furious. To be useful, the screen should be capable of displaying at least four levels of gray scale. Plasma screens have the best chance for action-oriented game software. Almost all decent laptops these days have an external monitor port that can be used with an external RGB color monitor. The best bet is to bring your laptop and try out the software at the dealer before you buy. □

Eric Grevstad is a newspaper columnist and frequent contributor to Portable Computer Review, PCResource, inCider, and other magazines.

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THE INDISPENSABLE ELEMENT



Photo 1: Clockwise from upper left: Maxx yoke, FlightStick, Winner 909, Mach III, Kraft Premium II, Kraft KC3, Gravis MK VI, Tac1 +.

For arcade play or vehicle simulation, there's no substitute for a joystick.

Whatever their manufacturers call them—joysticks, flightsticks, analog controllers, or control yokes—manual control devices give game players the ability to control the action with a degree of precision that a keyboard cannot duplicate. Trying to follow Chuck Yeager around the pylons of an air race course by pushing numbers on a keypad cannot compare to the smooth, incremental control of a joystick or a control yoke, which duplicate the sensation of flying to an uncanny degree.

CALIBRATION

Chuck Yeager's *Advanced Flight Trainer* from Electronic Arts was used as the basis for evaluating the joysticks and the control yoke that *PCGames* tested (see photo 1). We used Cessna 172 flight simulation for two reasons: It accurately reproduces the flight characteristics of the Cessna 172, which the Maxx control yoke is designed for, and it provides a reproducible means of calibrating joysticks.

In the straight-and-level simu-

lation mode, two small black squares appear on the screen (see photo 2). The larger of the two (about three-quarters of an inch square) is always centered in the computer's screen. It represents the heads-up display (HUD) of the aircraft you're flying.

The second black square (about three-eighths of an inch square) in the flight presentation is movable and represents the composite position of the aircraft's ailerons and elevators. In other words, when the aircraft is trimmed correctly and in straight and level flight, the small black square is centered within the large black square. This indicates that there are no control inputs to the plane. You can take your hands off the controls and the plane will continue to fly straight ahead.

When a joystick is first plugged into the controller interface board, it needs to be trimmed. By adjusting the trim controls on the joystick until the small square is centered within the larger square, the joystick is in perfect electrical balance, with no residual inputs—up, down, left, or right. In other words, the joystick is centered.

If you don't have *Chuck Yeager's Advanced Flight Trainer*, don't panic. You can still calibrate your joystick using the simple BASIC routines included with these products. We used this program because it makes the centering process a lot simpler.

COMMON DENOMINATORS

All the joysticks and the control yoke we tested had some things in common. A full deflection to the right or left produces a lateral displacement (of the little black square in the HUD) of 4½ inches to either side of the center of the screen (on a screen that measures 10½ inches horizontally). Moving

by Chuck Weston

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the joystick or control yoke fully toward you produces a vertical displacement of $1\frac{1}{4}$ inches above center (on a $7\frac{3}{4}$ -inch vertical screen). Moving the joystick or yoke fully away from you produces a displacement of $1\frac{1}{4}$ inches below the center of the computer's screen.

All the joysticks and the yoke are analog controllers. That is, they are true proportional-control devices, where a 50 percent deflection of the stick produces a 50 percent deflection of the small square in the HUD. The amount of effort needed to deflect the stick is different in each design. Some are very sensitive and others require medium to heavy effort.

The less sensitive devices have better springs and return to center more quickly. Those joysticks with less mass will also center more quickly. If you intend to use the joystick primarily for arcade-type games that require fast hand/eye coordination, a short-throw joystick will serve the purpose very nicely. If, however, you want to use flight simulators and other programs that require more precise analog control rather than fast action, one of the larger joysticks that need more actual movement for a full deflection would be better.

The devices we tested are listed alphabetically, with comments on their various features and our overall impression.

FLIGHTSTICK

The FlightStick from CH Products (\$79.95) has trim adjustments for all axes and a variable roller control that serves as a throttle for aircraft simulations. The feel is very light compared to other joysticks. One nice touch is the thumbscrews on the controller board connector; you don't need a screwdriver to attach the cable.

The FlightStick ($6\frac{1}{2}$ by $6\frac{1}{2}$ inches base, $7\frac{1}{2}$ inches high) has a very streamlined design, with an extended portion in front that



Photo 2: Cessna 172 control panel from Chuck Yeager's Advanced Flight Trainer showing calibration rectangles.

separates your trigger finger from the rest of your hand. One fire button is embedded in this section of the stick, and a second is prominently located on the top of the joystick.

The easy-to-use trim and throttle controls are large serrated rollers at the base of the assembly. The base of the FlightStick is massive and resists displacement during rapid excursions of the stick. This stick returns to center repeatedly when used with *Advanced Flight Trainer*.

GRAVIS MK VI

The features of the Gravis MK VI (Advanced Gravis Computer Technology; \$54.95 for black, \$79.95 for clear model shown in photo 1) include a fire button on top of the stick and two additional select buttons. Three thumbwheels are arranged to form a "fire button switch matrix" that lets the user reconfigure any of the three switches as the fire button. Small screwdriver trim adjustments are provided for both axes.

A unique feature of the Gravis MK VI ($6\frac{1}{2}$ by 5 inches base, 6 inches high) is the eight-position effort-adjustment mechanism in the form of a large wheel contained within the base housing. It has notched detents and balls that allow eight discrete effort set-

tings. The last position is the free movement setting, which removes all spring pressure from the stick.

Handle shape is a very comfortable full-grip type, with a foam rubber covering that is easy on the hand. A large, flat fire button is mounted directly on the top of the stick. The two other select buttons, on the left side of the joystick base, are large and easily accessible.

KRAFT KC3

Kraft Systems' KC3 (\$29.95) is a light- to medium-effort joystick with a cone-shaped handle. It has trim adjustment sliders for each axis on top of the base, on either side of the stick. A fire button is located in the top of the handle, and two auxiliary switches are in the front corners of the base.

The KC3 ($4\frac{1}{2}$ by $3\frac{1}{2}$ inches base, 5 inches high) incorporates an Apple/IBM selector switch in the underside of the base, along with four small selector levers that let you set up the stick for free-floating operation. This is done by moving the joystick to one extreme corner and changing one pair of selectors, and then moving the joystick to the other extreme corner and changing the other pair of selectors.

This joystick has a single attached cable with two connectors, one for the Apple II and the other for the IBM PC. The control resolution of the KC3 was excellent, and the device repeatedly centers itself when you remove your hands from the stick.

KRAFT PREMIUM II

The Kraft Premium II (\$39.95) is quite different from the KC3 in a number of ways. It is intended for only IBM PCs and has one 15-pin connector. The stick is short ($4\frac{1}{2}$ by $4\frac{1}{2}$ inches base, $3\frac{1}{2}$ inches high), protruding only $1\frac{1}{4}$ inches above the housing. Trim controls are roller adjustments embedded in the top of the base on either side of the stick. This joystick has

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no fire button on the stick itself; instead there is a red button on the top of the base and a black button in the front.

The Premium II also incorporates a set of selectors so you can set it up as a free-floating joystick. These selectors (only two in this case) operate like the ones in the KC3. The stick must be pushed to first one extreme corner and then another as the selectors are thrown, as indicated on the base. The resolution of this stick is excellent and centering is repeatable. This should be a good stick for arcade games.

MACH III

The Mach III (\$49.95), manufactured by CH Products, features top-mounted slide-operated disconnects for both axes that enable free-floating operation, and small rotary trimmers with separate indicators for X- and Y-axis operation.

The Mach III (4 by 4 inches base, 4 1/4 inches high) has a fire button mounted in the top of the inverted-cone stick and two auxiliary switches on the sides of the far corner of the joystick base. This device is equipped with a single 15-pin cable that has finger-operated mounting screws on the connector shell. The Mach III is a light-effort stick with excellent resolution and good centering repeatability.

MAXX

Alturas Corporation's Maxx (\$99.95) is a control yoke rather than a joystick. It resembles the control wheel in a modern single-engine aircraft. In the front, under the place where the control shaft enters the assembly, is a sliding throttle control, much like the one in a single-engine plane.

The yoke is spring-loaded so that it returns to the center position of the forward/back mode when left idle. Total forward/back motion is 2 1/4 inches. There is no centering spring action in the side-to-side direction, which rotates 60 degrees either side of cen-

ter. Some software, however, can use the action buttons in each arm of the yoke for calibration.

Maxx (11 1/2 inches long, 11 inches wide, 7 inches high) attaches to a table top via a pair of large hand screws attached to a flat plate beneath the yoke assembly. There are no trim adjustments on the Maxx yoke but it centers itself quite well in spite of this.

Tac1 +

Suncom's Tac1+ (\$29.99) features an Apple/IBM selector switch and a fire button selector switch, both on the bottom of the base. You can select either the stick-mounted fire button or one of the two switches on the top of the joystick housing.

This joystick comes with a three-flavored cable arrangement that lets you plug into the Apple IIe, IIc, or IIgs, the Apple II or Franklin computer (16-pin DIP connector), or an IBM PC or compatible via the 15-pin connector. External trimmers are provided for each axis on the top of the joystick housing.

The Tac1+ (4 1/4 by 4 1/4 inches base, 4 1/4 inches high) is a light-effort device with little or no inherent damping. The stick mechanism is very loose in its gimbal and can be moved up and down visibly if pulled upward. When released it centers itself, but not be-

fore some overshoot and bounce. The resolution is acceptable, but not in the same league as the more sophisticated sticks like the Gravis MK VI and the FlightStick.

WINNER 909

Features of the Winner 909 (Contriver Technologies; \$24.95) include a bottom-mounted Apple/IBM selector switch. Trim controls for both axes are also located on the bottom of the joystick base.

The Winner 909 (4 1/4 by 4 inches base, 4 1/4 inches high) is a light-effort stick, with a handle shaped like an inverted cone. A fire button is incorporated in the top of the stick, and two other switches are located on the top of the housing in the far corner. This design makes the switches equally accessible for both right- and left-handers.

Two cables are supplied with the Winner 909; the IBM version is an extension cable for the Apple 9-pin connector. (There are attachment screws on the 9-pin Apple connector but none on the IBM cable.) This stick showed good resolution and, once adjusted, returned to center every time.

Joysticks are like computer keyboards. No two users will ever agree totally on what feels and works the best. Our advice is to try out a joystick with your favorite game at your local dealer before you buy. □

FlightStick

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CH Products Inc.
1225 Stone Drive
San Marcos, CA 92069

Gravis MK VI

Analog Controller
Advanced Gravis
Computer Technology Inc.
6894 Palm Avenue
Burnaby, BC, Canada V5J 4M3

Kraft KC3

Kraft Premium II
Kraft Systems Inc.
450 West California Avenue
Vista, CA 92083

Maxx Control Yoke

Alturas Corporation
Rainier Bank Plaza, 6th Floor
777 - 108th Avenue NE
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Tac1 +

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Wheeling, IL 60090

Winner 909

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the midway

Categorizing entertainment software packages is an almost impossible task. As designers try to broaden the appeal of computer games, they incorporate elements from what were once distinctly different types of games into their creations, resulting in considerable cross-breeding.

We could define many other categories of games here but have restricted ourselves to just those discussed in this issue's Midway section. In future issues of PCGames we will look at other ways to group the nearly limitless variety of entertainment software. Here is our rationale for the general game categories used in the Midway.

Arcade games emphasize fast action and eye/hand coordination. **Sports games** simulate playing a sport, with realistic action and strategy. In **vehicle simulations** you operate a land, sea, air, or space craft in lifelike situations, often including simulated combat.

Fantasy role-playing games let you create, and become, one or more fictional characters with a dedicated mission, usually to defeat some evil being. **Strategy games** are chess-like games that require more long-term thinking than quick action. Using text alone or text and graphics, **adventure games** create a world through which you guide a character on a quest.

Whether or not you agree with our classifications, we're sure you'll find what you're looking for along the Midway.

ARCADE



When most people hear the words "computer games," they think of arcade games. It's no wonder, as these games have been around for over a decade now, and instead of showing a decline in popularity, they are actually increasing in numbers.

Arcade games are games of action and skill, hand and eye coordination. They can be fast or slow, easy or difficult. *Space Invaders* is an arcade game, but so is a computerized version of pinball. Arcade is actually a fairly broad term, loosely covering a range of more specific categories.

One thing they all have in common is that they are graphically intensive. Unless you have some sort of graphic display card in your computer, you can forget about playing an arcade game. If you have a Color Graphics Adapter (CGA), you will have access to just about all games, but the resolution of the display and the number of colors will be limited. Enhanced Graphics Adapter (EGA) owners will often be rewarded with a dazzling display of colorful high-resolution

graphics in arcade games, but having an EGA card will not make the game take advantage of the EGA's extra abilities unless the software is programmed specifically to do so.

Only a few games will work with personal computers equipped with a Hercules Graphics Card (HGC), and fewer still directly support Video Graphics Array (VGA) or Multicolor Graphics Array (MCGA) graphics. Another factor to consider is game controllers. Most PC games will offer a keyboard option, so you can play without any special controller. But many arcade games, especially those with fast action, really require a joystick or mouse to get the best game-play possible. For a complete discussion of the various graphics standards and game controllers, see the Sideshow section on page 14.

GAMES OF SKILL

Arcade games don't have to be fast; they can be computer versions of popular games played long before computers were around. Good examples are *Mini-Putt* (CGA/EGA/

HGC, 256K, \$39.95) from Accolade and *MiniGolf* (CGA/HGC, 512K, \$19.95) from Artworx.

One of the most popular family games in America, miniature golf is a comic game of skill. Just like regular golf you play eighteen holes, but instead of long courses you have "Rube Goldberg" courses of just a few feet in length, replete with obstacles like ramps, moats, and moving windmills. *Mini-Putt* and *MiniGolf* are fun adaptations of a game that is wacky to start with and is made more so by the magic of the computer. Combine odd traps and obstacles with some great graphics and you end up with games that are a lot of fun.

One of the most interesting games in a long time comes from the Soviet Union. *Tetris* (CGA/EGA/HGC, 256K, \$34.95) by Spectrum HoloByte is a deceptively simple game that will quickly consume your attention and your time. The game consists of small geometric shapes made from four squares that fall into the playing area of the screen. The object of the game is to fit the shapes together as

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the midway

ARCADE continued

closely as possible, making it an animated random jigsaw puzzle. You can rotate the shapes at 90-degree intervals to make them fit the available spaces better, or move them left and right before letting them fall. Whenever you fill in a line completely it disappears; fill in ten lines and you go on to the next level. It is both clever and addicting. If you like to have a game or two at the office, this should be one of them. Spectrum HoloByte even includes a memory-resident version on the disk.

From the mists of time to today's computer screen comes *Shanghai* (CGA, 256K, \$37.95) from Activision. Adapted from the 3000-year-old game of mah jongg, it is a quiet game of concentration and study. You can play by yourself, against someone else, or against the clock. This game consists of removing matching tiles from a stack that is randomly generated. Each tile has at least one match, but you can only remove those on the top or outer edges of the stack. To get to the others you must remove these outer ones first, all of which takes careful planning or you end up with a situation where no moves can be made. But it is always possible to get them all, if you take the time to think about it. The only drawback to *Shanghai* is that it supports only CGA graphics; it would be nice to have the higher resolution of EGA.

Stepping up the pace a little we come to a computerized classic, *Pinball Wizard* (CGA/EGA/HGC, 256K, \$34.95) by Accolade, an action-filled game of skill and chance that is a remarkably accurate simulation of the real thing. The game can be played by up to four persons, and it has all the sights and sounds you would expect in pinball. And once you master the supplied game, *Pinball Wizard* has a complete pinball construction set built in that lets you create and play your own idea of the ultimate pinball game.

ARCADE ADVENTURES

Arche adventure games are a class in themselves. Undeniably arcade games, they have strong storylines that resemble those found in adventure games. While they are quite graphically intensive and have classical arcade sequences and a lot of sound and music, there is an element of strategy present as well.

One such game is *Defender of the Crown* (CGA/EGA/HGC, 256K, \$39.95.) from Cinemaware. In *Defender* you play the part of a knight in medieval Britain. Good King Richard is dead and anarchy rules. Your job is to conquer all the lands owned by the other Saxon and Norman knights, who of course are all trying to do the same thing. (It's sort of a medieval version of the game of Risk.) To win you must fight with sword and catapults, participate in jousts, and rescue fair maidens. You can count on some help from your friend Robin Hood, but otherwise you are on your own. *Defender* has excellent graphics and is fun for kids of all ages.

From the creators of *Defender* comes another classic game, *The Three Stooges* (CGA/EGA, 256K, \$49.95). You control the famous trio as they try to save a widow and her three beautiful daughters from the clutches of an evil banker. This game has excellent graphics, digitized sounds and speech, as well as great animation. As an extra plus the game strategy is pretty good too. There are several arcade sequences based on episodes from the Stooges films, with favorites like pie fights, boxing matches, hospital scenes, and cracker-eating contests (you as Curly against the oyster).

Movie adaptations seem to be big this year. From Mindspace comes *Willow* (CGA/EGA, 512K, \$39.95), based on the Lucasfilm movie of the same name. This is an arcade adventure with beautiful graphics, some of the best I have ever seen on a PC. It has seven arcade sequences based on events in the movie, some of which are fast arcade style, others are slower and more strategic in nature. To help make the game replayable, it has a reset option that creates new maps and scenes, so you can still play it after solving it the first time. While it has impressive graphics, the game itself is fairly simple and children seem to like it.

Pirates! (CGA/EGA, 256K, \$39.95) by MicroProse is a combination of arcade, adventure, and strategy rolled into one. It is set in the seventeenth century, and you are the captain of a pirate ship. You sail throughout the Caribbean, looting, trading, and fighting in a unique combination of games that will have something for

just about every type of game player. The game uses graphics, animation, strategic simulations, and interactive text to recreate the days when Bluebeard terrorized the seas.

It's a natural extension of imagination to go from pirates to martial arts. In *The Last Ninja* (CGA/EGA, 512K, \$42.95) from Activision we have a classic arcade adventure. This game is hot, with smooth fluid animation and complex fighting action on the part of the ninja. There are a tremendous number of animated objects (the publishers claim over 1000), six landscapes with 130 different screens, and several different music scores in the game. As the ninja you must find and learn to use all the weapons of these Oriental warriors, from swords and shuriken stars to magical items, to defeat the soldiers of the Shogun. An exceptionally well done game, *The Last Ninja* is one of my favorites.

ARCADE ACTION

Now we come to the arcade mainstream. These are games whose goal is primarily action, and lots of it. From blasting aliens to games of war, any concept that can generate fast action has been used in the arcade.

Epyx produces the Maxx Out! series of arcade games. These are meant to be moderate in price but heavy on action. For example, consider *Death Sword* (CGA, 256K, \$29.95). Ever feel like picking up your sword and making like Conan the Barbarian? In this game you get your chance. The premise is that you are out to rescue a princess and have to fight (with your trusty broadsword) every evil creature between you and her. Using your joystick or keyboard you must thrust and parry against either computer opponents or a friend sitting next to you (in two-player mode).

Another in the Maxx Out! series is *Rad Warrior* (CGA, 128K, \$19.95). You are Tal, a warrior in a radioactive future. You have decided to rid the world of the evil mutants, but no one said it would be easy. First you have to find your antiradiation suit, then fight your way to the nuclear power plant and blow it up. Lots of weird creatures to zap in this game, as well as a large underground area to explore.

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the midway

ARCADE continued

der *Dash* game you will love Epyx's **Boulder Dash Construction Kit** (CGA, 128K, \$24.95). And even if you have never heard of Rockford, you will quickly become a convert. *Boulder Dash* is a game of mining for diamonds while avoiding falling rocks, exploding things, deadly creatures, and other assorted nasties. With this game-generation kit you can create your own versions or duplicate those already in existence. Besides being able to invent unlimited unique games, it comes with fifteen caves for you to tackle.

Impossible Mission II (CGA, 256K, \$39.95) is the sequel to Epyx's original and highly successful *Impossible Mission*. In this second edition you must search dozens of rooms for ELVIN, the evil mastermind. But every room is filled with his deadly robots, energy traps, one-way elevators, bottomless pits, and occasionally a hidden clue or two. To win you must move your acrobatic character from room to room and from building to building by jumping over the pits and outsmarting the killer robots long enough to search the objects in the rooms for clues. There are an awful lot of rooms in the eight buildings, enough to keep you busy for a long time.

Another game sequel comes from Electronic Arts. **Skyfox II: The Cygnus Conflict** (CGA/EGA, 384K, \$29.95) is a fast-paced space shoot-'em-up that has excellent graphics and sound effects. You must pilot the Skyfox into outer space to destroy the Xenomorph star fighters and bases. The space scene graphics are tremendous, and the fighting is fierce. I like *Skyfox II* much better than the original, which isn't usually the case for sequels.

For a change of pace you might check out Mindscape's **Paperboy** (CGA/EGA, 256K, \$39.95), based on the arcade hit of the same name. You as the paperboy must deliver newspapers to the folks on your route. But along the way there are fast cars, muggers, dogs, and sidewalk gratings to wreck your bike. The game has very good sound effects and high-speed smooth scrolling throughout the paper route.

As I said, arcade games can have unusual premises. In ShareData's **Starquake** (CGA, 256K, \$9.99) you must guide the Bio-Logically Oper-



The Three Stooges



Skyfox II: The Cygnus Conflict

ated Being (BLOB) into the depths of a planet with an unstable core. If your BLOB doesn't make repairs in time, the planet will implode, creating a starquake that will endanger the entire universe. Naturally, there are a lot of unfriendlies between you and your goal.

Taking a more traditional approach is **Dark Castle** (CGA/EGA, 256K, \$39.95) from Three-Sixty Pacific Software. This game consists of a series of rooms that constitute a unique arcade puzzle that must be solved to get to the next room. There are lots of deadly little creatures to kill, ropes and ladders to climb, urchins to avoid, and rocks to throw, and it is generally lots of fun.

Tired of blasting monsters? How about becoming the monster and blasting those pesky little humans! The Activision game **Rampage** (CGA/EGA, 512K, \$37.95) is based on a popular coin-operated arcade game. Here you get your choice of being a giant wolfman, Godzilla, or King Kong. As

the monster you can smash, eat, and generally destroy any of 132 different cities. But you have to watch out for those darn humans, who keep trying to blow you up.

Data East has been a publisher of games for many years. It currently offers a number of action-filled arcade games for the PC. Here is a sampling.

Lock-On (CGA/EGA/HGC, 256K, \$39.95) is a high-speed flight simulation war game in which you pilot a jet over enemy territory, attacking a variety of targets on the land, on the sea, and in the air. While not meant to be an accurate simulation of a jet in battle, it does offer the player a fast-action flight game. I'd recommend a joystick for maximum enjoyment.

Commando (CGA, 256K, \$19.95) is pure arcade action, nothing less. Your job as the commando is to take on the enemy hordes and blow them away. Every step of the way is a battle, and all you can count on is your machine gun and trusty hand grenades (at least as long as your ammo holds out).

Tag Team Wrestling (CGA, 256K, \$14.95) is an arcade simulation of a match between two teams of pro wrestlers. You control one team, the computer the other. You can use a variety of wrestling techniques (body slams, drop kicks, backbreakers, etc.) on your opponents, but they can do the same to you. A joystick is optional in single-player mode but required in two-player mode. *Tag Team* is a moderately interesting game, but clearly there are better arcade games you can spend your money on.

Karnov (CGA/EGA/HGC, 512K, \$39.95), also from Data East, is an adaptation of the coin-operated game by the same name. As Karnov, a fire-breathing Russian, you must fight to recover the lost treasure from a powerful dragon and his monstrous henchmen. This one has good graphics and nice animation.

As you can see there is something for everyone in today's arcade game scene. And new games are coming out almost every day. Happy blasting!

—Lou Wallace

Lou Wallace is the technical manager for RUN magazine and a contributing editor for AmigaWorld magazine. He has been playing games for over ten years.

Out of Sight!

F-19

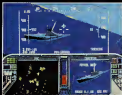
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SPORTS



If you love sports, chances are they play a role in every aspect of your life. You probably play in a local softball, basketball, or bowling league, try to attend as many professional sporting events as possible and watch the rest on television, and spend a few minutes (at least) every morning discussing the previous night's scores with the guys and gals in the office.

If you own an MS-DOS computer, you probably can't resist trying a couple of sports games. There are dozens of products to choose from, ranging from text-only simulations to arcade-type games with colorful graphics. Game developers are well aware of the dramatic rise in the sales of inexpensive MS-DOS computers, so you can expect the hottest new games to be available for your system months before your friends can get their Apple or Commodore versions.

Whether your love is baseball, basketball, football, hockey, soccer, or golf, there's a wide range of programs that vary in price and complexity. Even if you want to test your boxing or karate skills, you have dozens of choices to wrestle with. In fact, to cover every sports game available would require a magazine in itself. So since this is autumn and the football season is in full swing and the basketball and hockey seasons are heating up, we'll look at the offerings in those three sports. Don't worry, though, we'll take a detailed look at the other major sports—and a few minor ones—in future issues of *PCGames*.

READY, SET, HUT!

Football is both a simple and a complex sport. The object is to run or pass the ball into the end zone; that's the simple part. However, the dozens of plays, the various defensive and offensive formations, and the speed and precision at which the game is played make football a complicated and difficult sport. Your options in football games for MS-DOS computers range from the simple to the complex.

Computer football games come in two flavors: strategic simulation

games and arcade-like action games. While you have many options in both categories, two programs stand out as the best in their field.

NFL Challenge (CGA/HGC, 320K, \$99.95) from XOR Corporation gives you an idea of what it's like to be a National Football League coach. The impressive package includes a user's guide, offensive and defensive playbooks, and the *Illustrated NFL Playbook*. When you can read and comprehend everything in this package, you're ready to coach football. On the back of the box, XOR claims, "*NFL Challenge* is the most authentic, realistic football game ever created for computers." I'll take that a step further and say that it's the most authentic, realistic sports game ever created for computers.

NFL Challenge isn't for everyone. To get the most out of this game you need a basic knowledge of football. For example, you should know the difference between a zone defense and a man-to-man defense, the weak side versus the strong side, and a draw as opposed to a trap. All the words and phrases are clearly described in the documentation, but if you don't have a general knowledge of how football works, even these explanations won't help.

If you're the kind of person who enjoys John Madden's chalkboard analysis during NFL telecasts, you'll love this game. On offense, you have five groups of plays from which to choose. The groups are color-coded. The white group, for example, is the most straightforward collection. The plays in the yellow group are the most risky

and are primarily used in long-yardage situations. The blue, purple, and red groups fall in between. In addition to these five groups, you also have the green group for special-team plays (punts, field goals, kickoffs, and so on).

On defense, you have four groups to choose from, ranging from straight defensive sets to stunts, blitzes, zones, and nickel defenses. As with offense, the play groups are color-coded, which helps you search for the right defense to call as the 30-second clock winds down.

When you and your opponents (either human or computer-controlled) have made your play selections, the formations appear on the screen as X's and O's. Then the action is played out—once at normal speed, then again as an instant replay in slow motion. Normal speed is pretty fast, so the instant replay gives you a chance to see who missed a block or an open-field tackle.

The game's manual says that XOR spent 10 man-years developing *NFL Challenge*. It shows.

If you don't want to make the time and money commitment that *NFL Challenge* demands, XOR offers a fewer-frills package called *Pro Challenge* (CGA/HGC, 320K, \$49.95). While *NFL Challenge* lets you choose from all 28 NFL teams, *Pro Challenge* provides only two fictitious teams, the All-Stars and the All-Pros. The identical teams, however, are preferable for someone who wants to match pure coaching skills against the computer or against another player. Since the teams are evenly



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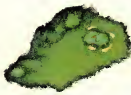
The 4th at Balnarrard



The 13th at Augusta



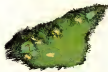
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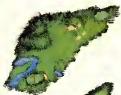
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the midway

SPORTS continued

matched, no one can say. "You had better players."

You also have fewer offensive and defensive play groups from which to choose. On offense you have three groups condensed from *NFL Challenge*, and on defense you have two. Also, *Pro Challenge* doesn't provide an instant replay in slow motion after the initial play is run. The game plays the same, and if you're not into elaborate play-calling, *Pro Challenge* may be all you need. What if you decide you want to upgrade from *Pro Challenge* to *NFL Challenge*? XOR Corporation generously offers a trade-in coupon worth \$50 toward the purchase of *NFL Challenge*.

THE HOTTEST ACTION

On the arcade side of the field, *John Elway's Quarterback* (CGA/EGA/MCGA/HGC, 256K, \$29.99) from Melbourne House is an action-packed realistic football game that imitates the popular video game of

the same name. To excel at this game you need a knowledge of the game, but quick reflexes and nerves of steel are equally important as you, the quarterback, sit in the pocket waiting for your receiver to clear the defense, while blitzing linebackers close in on you.

While it's an arcade game, there's still strategy involved. You must select your offensive and defensive play from screen options. On offense, you can choose from nine plays: sneak, draw, sweep, screen pass, (play) action, lookie (pass), post (pattern), shotgun, and (long) bomb. On defense, you can set up in the following formations: goal line, standard run, stunt, blitz, zone, and prevent.

The various plays are diagrammed on the screen. You make your selection by highlighting the appropriate box. It's important that you examine the diagrams so you know where your receivers are headed. You don't have a lot of time to study the field

once the play starts, so it's helpful to know that on the lookie pass, for example, a running back is positioned in the right flat as a safety valve.

Another reason to pay close attention to the diagrams is that the design of the play may change. For example, if the ball is marked on the left hash mark, a sweep will run to the left. But if the ball is on the right hash mark, the sweep goes to the right.

Once the play begins, the computer controls all the players, who will act according to the offense or defense you selected. However, you control the quarterback on offense and the middle linebacker on defense. So, for example, you may set up for a long bomb but decide to scramble when you see the blitz. Or, if you're on defense, you may set up in a prevent defense but decide—as the middle linebacker—to rush the quarterback.

John Elway's Quarterback features sound. The announcer/commentator's favorite expressions are "Prepare for kickoff," "Touch-down!," and "It's good!" The sound is fun at first, but you can tire of it quickly—especially when you're just learning the game.

The most difficult part of the game is the passing, which is pretty realistic. At first, it seems as if there isn't enough time to get a pass off. Rookie quarterbacks probably have the same feeling. Football is a fast-moving game, so you have to expect that an arcade-style game will have a learning curve. You'll pick up everything but the passing after a couple of games. A practice mode that lets you work on your passing would be a welcome addition to the game.

GFL Championship Football (CGA, 256K, \$42.95) from Gamestar is another arcade game that features impressive sound and graphics. It also offers an interesting perspective. You view the action from inside the helmet. If you're the running back, you see your blockers' backs and attempt to hit the holes quickly before they close. If you're the wide receiver you view the football coming toward you. While the graphics and sound are impressive, the game play is not in the same league as *John Elway's Quarterback*.

Super Sunday from The Avalon Hill Game Company and *3 in 1 Football* from Lance Haffner Games are simulations based on actual statisti-

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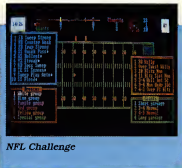
cal data about the teams on the field. You have no control over the individual players as you do in *John Elway's Quarterback* or *GFL Championship Football*, but it's fun to pit your favorite team against your second-favorite team or your least-favorite team.

In *Super Sunday* (CGA, 128K, \$35) you choose from the 20 great Super Bowl teams from 10 great Super Bowl battles. The teams you can pick from include the 1966 Packers and Chiefs; the '68 Colts and Jets; the '70 Cowboys and Colts; the '73 Vikings and Dolphins; the '78 Cowboys and Steelers; the '80 Eagles and Raiders; the '81 Bengals and 49ers; the '82 Redskins and Dolphins; the '83 Redskins and Raiders; and the '84 49ers and Dolphins. You can either recreate the Super Bowl and see if your results match what really happened on the field, or you can see how great teams would have fared against one another. For example, you can see how the '84 49ers would have done against the '73 Dolphins, or how the '68 Jets would have performed against the '78 Steelers.

You can play the game in one of three modes: two humans as coaches, one human coach and one computer coach, or you can have the computer coach both teams while you just sit back and watch. For the most scientific results, the last way is probably the most accurate, but it's more fun to play the game yourself.

The action moves along pretty quickly. You simply select your play—sweep, short pass, whatever. Then you choose a formation and the runner if it's a run, and the quarterback and receiver if it's a pass. You then go to a graphics screen where the action is played out. The graphics, unfortunately, are mediocre at best.

Lance Haffner's *3 in 1 Football* (256K, \$39.99) is similar but without the graphics. It does, however, have hundreds of teams from which to choose. You can pick from the current NFL teams, great NFL teams of the past, current college teams, and great college teams of the past. It's fun to match up great current teams against great old teams, or to match up colleges that aren't likely to play one another. For example, you can pit Youngstown State against Notre Dame.



NFL Challenge



Pure-Stat College Basketball

The game moves along quickly. On offense, you pick from 12 plays, not including punt, field goal, and scouting report. And on defense you choose from six standard formations. The strength of *3 in 1 Football* is the huge number of teams you can play with, but the weakness is that the games lack depth.

RUNNING AND GUNNING

Like *NFL Challenge*, *Basketball Challenge* (CGA/HGC, 320K, \$39.95) from XOR Corporation is far and away the best strategy basketball game tested. XOR could improve the game, however, by providing real teams instead of fictitious ones. Once you select your team, you can view your strengths and weaknesses. For example, your strength may be your guards and small forwards, and your weakness could be your centers and depth. You also see who your top offensive and defensive stars are; the game even tells you who your top three-point shooters are.

The key aspect of *Basketball Challenge* is the strategy. During the course of a game you have several offensive and defensive options. On offense, you can call a shot (layup, short jumper, long jumper, set shot), call a play (to produce an open shot), change your offensive set, change the offensive tempo (very slow, slow, normal, fast, very fast), or even call a time-out. Calling a time-out gives you the chance to set up a play, break momentum, rest players, make substitutions, or stop the clock.

You can also "yell at your players," as the program calls it. This is an interesting feature. While the ball is in play, you can call a shot or set up a play. But, as in real basketball, players sometimes can't or don't carry out the coach's instructions. Tight defense could stifle the play, you could commit a turnover, a player may become so open that he shoots on his own, or the play could be run as you instructed.

On defense you can change from man-to-man to zone or full-court press while the game's in progress. The game is realistic in the sense that it's easiest to set up a play during a time-out.

The graphics are clear and easy to follow, but XOR could have gone a step further with them. Players are represented by numbers that correspond to their positions: number 1 is your point guard, 2 your big guard, 3 your small forward, and so on.

While it's easy to follow the movement of the play, you can't tell from the graphics when a pass is made or a shot attempted. The best way to follow the game is to keep an eye on the graphics but also watch the play-by-play broadcast of the game that scrolls by on the screen. The commentator informs you every time the ball is passed or shot. The commentator also lets you know when a foul or turnover is committed. And when one of your players is getting tired, a message tells you which player is signaling the bench that he wants to come out.

Pure-Stat College Basketball (CGA/HGC, 256K, \$39.95) from Software Simulations and *NBA* (CGA, 128K, \$39.95) from Avalon Hill allow you to match 20 great college teams and 20 great National Basketball Association teams, respectively. While the games are sold by

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ACTIVISION



the midway

SPORTS continued

different companies, they are exactly the same, except for the teams. You can have the computer coach both teams, you can coach one and the computer the other, or you and a friend can compete.

Each time you gain possession of the ball, you indicate who is your point guard and whether you want to pass, shoot, or kill the clock. If you choose to pass, you must indicate which player will pass and to whom; then you decide whether that player will pass or shoot. When you select a shot, you then indicate whether you want to take an outside, an inside, or a three-point shot. And finally you must tell the computer what to do if the shot misses: take it back out, put it back up, rebound aggressively, or guard against the fast break.

On defense, you indicate whether you want to guard against an outside or an inside shot, try to steal or block the shot, play for a fast break on rebound, or double-team a player. If you double-team someone, you tell the computer who to double-team

and then go back and indicate your defense.

It sounds complicated, but you can run through the screen choices quickly. When the play is called, the graphics screen appears and the action is displayed. The graphics aren't terribly sophisticated, but they're better than no graphics at all.

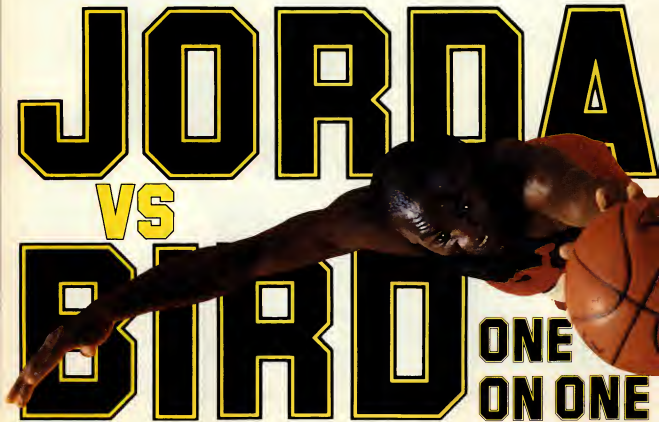
Lance Haffner's *Final Four College Basketball* (256K, \$39.99) and *Basketball: The Pro Game* (256K, \$39.99) are text-only simulations, but they also differ from the games mentioned above in the sheer number of teams you can play. While *NBA* and *Pure-Stat College Basketball* offer 20 teams, the Lance Haffner games offer hundreds of teams from which to choose. It's fun to have so many matchup possibilities, but the game sacrifices depth in return.

Do you recall those high school basketball glory days? Like the time you sunk the winning shot to beat your crosstown rival and capture the league title? You don't? Well, don't worry. You're not alone.

When most of us think of basketball, we don't recall glory days. Instead, we remember playing in the driveway, on the street, or in a parking lot. Any flat surface with a place for a hoop was transformed into Boston Garden. Epyx's *Street Sports Basketball* (CGA/HGC, 256K, \$19.95) attempts to capture those fond memories. You have four choices of playing locations: the school playground, a back alley, a suburban street, and a parking lot. Each court has inherent liabilities. For example, if you're playing in the alley, watch out for that oil slick.

The game is your basic three-on-three pickup game. The local gang assembles on the curb and you pick your teams. There are ten players from which to choose, each with his or her (this is co-ed ball) strengths and weaknesses.

Street Sports is a great concept. In fact, Epyx also offers *Street Sports* baseball and soccer, with other sports to follow. The bad news is that the concept behind *Street Sports Bas-*



SPORTS continued

ketball is better than the game itself. This game won't appeal to everyone. If you're serious about your computer sports, *Street Sports Basketball* isn't for you. However, if there's still a little kid in you, you should take a look at it.

HE SHOOTS... SCORE!

Hockey is one of the fastest-moving games in the world. To someone who isn't a hockey fan, the game can look like chaos on ice. Unfortunately, the offerings in the computer hockey category look like chaos on screen. Don't be too quick to blame the developers. Hockey is probably the most difficult sport to bring to the computer. The speed at which players skate, pass, and shoot makes it difficult to control the action.

Mindscape's *Superstar Ice Hockey* (CGA/EGA, 256K, \$39.95) is probably the best hockey game available. It features good graphics, some strategy, and a four-division league so you can set up a season. You can also trade players from team to team

and set up your own lines, letting you put different combinations of players on the ice. You can play *Superstar Ice Hockey* using the keyboard to control the action. However, if you want to get the most out of the game, you should invest in a joystick.

International Hockey (CGA/EGA, 512K, \$19.95) from Artworx is similar to *Superstar Ice Hockey*. It doesn't have as many features to dress up the game, though. The only noticeable difference is that the other team seems to score almost at will. In *Superstar Ice Hockey* the computer seems to help you by controlling some of your players, while you control the center. In *International Hockey* you control the player closest to the puck. Other players will go after the puck if it's near them. When one reaches it, you gain control of that player. And if you pass the puck to another player, you gain control of the player who receives the pass. As before, you should have a joystick to get the most enjoyment from the game.

International Hockey also offers a one-on-one game, which lets you go head to head with the opposing goalie; the other team then goes one-on-one with your goalie. It's nothing fancy, but it's a nice addition.

THAT'S IT, SPORTS FANS

Computer software and sports are a natural combination, whether you prefer the sound and graphics of action games or the coaching skills and instincts necessary to win a strategy game. Remember that this article is only a sampling of what's available. New games are coming on the market every month. In addition to reading *PCGames*, ask your friends and coworkers what games they like. If possible, try to see the products demonstrated at your computer store before you commit your dollars.

—Dan Muse

Dan Muse is the editor in chief of *inCider* magazine. He has been playing and writing about computer games since 1983.

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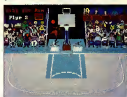
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VEHICLES

The pilot's hands drift effortlessly over the controls. The glow from the instrument panel reflects in the visor of his helmet. Coming in for the final approach, he lowers the landing gear and adjusts the flaps. A warning light on the instrument panel begins to flash red. He is coming in much too fast. In a split second he must decide to break off the approach or continue, knowing he may end up skidding to a fiery crash landing.

He's lucky this time. If he makes a mistake, it's only a simulation, albeit a very realistic one. The Air Force has long been using ultra-sophisticated (and ultra-expensive) simulators like this to show its prospective pilots what the real thing is going to look and feel like. The premise is that making a mistake in the simulator is far less costly than making the same mistake in an F-15 traveling at Mach 1 at 10,000 feet.

For you and I, who will probably never get the chance to "fly" one of those state-of-the-art simulators much less really get behind the controls of an F-15, there is still hope. With your own computer you can simulate experiences such as piloting a jet fighter or helicopter, controlling a submarine, or even driving a top-of-the-line sports car.

Just about any type of vehicle can be simulated, or so it seems. There are even simulations of planes that may not even exist yet, like MicroProse's *F-19 Stealth Fighter* (CGA/EGA/MCGA/VGA/HGC, 128K, \$69.95), which simulates the Air Force's top-secret weapon.

Simulations let you take the controls of vehicles that are too expensive and too dangerous to handle in real life, and have a blast doing it. Think about it—those Air Force cadets logging their first hours on the flight simulator must be having the time of their lives.

CLEARED FOR TAKEOFF

Flight simulators are by far the most prominent of the simulation genre, and *Microsoft Flight Simulator* (CGA/EGA/VGA/HGC, 256K, \$49.95) is probably the oldest and

most popular of these. In *Flight Simulator*, you take the "yoke" (the pilot's steering wheel) of a small private plane and fly out over the country. From your simulated cockpit you see the instrument panel and the view out your windshield just as you would if you were actually flying. Like a real pilot, you have to monitor your gauges—airspeed, altitude, and fuel—as you fly.

There is also a series of supplementary scenery disks that go along with *Flight Simulator*, so you can choose where you'd like to fly—Florida, the Great Lakes, or Washington D.C., for example. File your flight plan and pop in a scenery disk, and you're flying over national monuments and natural landmarks. Just don't forget where the airport is.

If you want to crank up the speed and strap on a jet fighter, you have a few choices. At the head of this squadron are *F-15 Strike Eagle* from MicroProse and *Falcon* from Spectrum HoloByte. *F-15 Strike Eagle* (CGA/EGA, 128K, \$34.95) simulates seven different missions against targets in Libya, Syria, Iraq, Hanoi, and the Persian Gulf. The realism of the

flight controls, weapons, and defense systems adds to the stirring authenticity of the mission scenarios.

You've got to devote absolute concentration to everything you're doing—flying the plane, tracking targets, firing missiles, evading incoming missiles, everything—or else! You'll find yourself leaning to the left and right as you bank your plane and gripping the joystick so hard your knuckles turn white.

Falcon (CGA/EGA/HGC, 256K, \$49.95) is also a high-octane fighter simulation. It features an incredibly detailed cockpit, including an incoming threat warning system, G-force indicator, angle-of-attack indicator, and status lights for all your aircraft and weapons systems—all displayed on the screen before you. Now, all this simulation takes some getting used to. You can't expect to be a fighter ace on your first flight, but if you devote some time and patience, it will be worth it.

Falcon sends you out on twelve missions, from a training mission in which you seek out and destroy a single ground target, to encounters with enemy MiG fighter planes and sur-



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the midway

VEHICLES continued

face-to-air missiles during complex bombing raids. If you complete your mission, you're rewarded with a medal indicative of your performance and the difficulty of the mission.

Both *Falcon* and *F-15 Strike Eagle* will give you a good taste of what it's like to actually fly a jet fighter into combat. The instrument panels and heads-up displays are faithful reproductions of actual fighter planes, even though the displays of targets and landmarks are only portrayed in line graphics (presumably in the interest of speed).

Jet (CGA/EGA/HGC, 256K, \$49.95) from subLogic is a bit less sophisticated than the previous two simulations but no less fun. There are fewer controls to master, so you can be up and flying in less time. You can fly a ground-based or carrier-based fighter carrying a salvo of "smart" bombs and air-to-air missiles. You'll engage enemy ground targets and missile-equipped cruisers, and get into dogfights with enemy fighters. You know you've earned your wings as a "flight simulator fighter pilot" if you can land your jet on the deck of the aircraft carrier.

If you're into historical rather than modern-day simulations, *Ace of Aces* (CGA/EGA/HGC, 256K, \$14.95) from Accolade brings you on bombing raids over Nazi Germany during World War II. As the pilot of an RAF Mosquito bomber, you'll get into dogfights with German fighters while you bomb ground targets and U-boats. You play the pilot, co-pilot, bombardier, and gunner all at once, shifting your view from forward, to either side, or out through the bomb bay.

The displays of the aircraft controls and the view out the window (or through the bomb bay doors) are delightfully realistic. Hordes of Messerschmitts with guns blazing as they try their best to keep you from completing your bombing mission. When you find your bombing target, you can watch your load of bombs fall through the bomb bay doors and find their mark.

If you prefer, you can simulate flying without simulating shooting things down. Most notable in this category is *Chuck Yeager's Advanced Flight Trainer* (CGA/EGA/HGC, 256K, \$39.95) from Electronic Arts. *Advanced Flight Trainer* gives you a choice of eleven actual aircraft and



F-15 Strike Eagle



Gunship

three experimental aircraft. You can fly something as tame as a Cessna 172 Skyhawk or as monstrous as the Mach-speed Lockheed SR-71 or Douglas X-3 Stiletto. Yeager starts you off in the cockpit of your chosen craft in the hangar, lined up for final approach (to practice landings), 3,000 feet up, or 10,000 feet up. You can just take a plane up for a spin, fly through a slalom course, or fly in formation.

Because you're not worrying about blasting things out of the sky, *Advanced Flight Trainer* concentrates on simulating the flight characteristics of the aircraft you're flying. You could log a lot of flight time without getting bored with this one. One final note: Although most flight simulators indicate that a joystick is optional, flying a flight simulator without one is about as much fun (and about as easy) as playing basketball with a brick.

CHOPPERS

In real life, a helicopter is a much more complicated craft to fly than a fixed-wing aircraft. Helicopter simulations are no different. **Tomahawk** (CGA/HGC, 512K, \$39.95) from Datasoft simulates the U.S. Army's AH-64A Apache attack helicopter. This simulation bristles with all the high-tech weaponry and instrumentation you could imagine. There are abundant elements of realism as well—night missions, crosswinds, turbulence, and low cloud cover.

You slowly crank up the "collective" to lift your Apache off the ground, then cruise off to look for targets. Like the real thing, you probably won't even see your target before you're alerted to its presence by your onboard defense systems. You'll see it on a small screen and be able to identify it as friendly or hostile. You know what to do then.

Like *Tomahawk*, **Gunship** (CGA/EGA/HGC, 256K, \$49.95) from MicroProse also simulates the Apache attack helicopter. The two are similar but different enough to both warrant interest. *Gunship* simulates more of the combat and mission style of helicopter warfare, though it also simulates the hair-raising experience of helicopter flight.

In *Gunship*, you scroll through a series of enemy identification screens before taking to the air. This is important in the age of long-distance encounters. Telling the good guys from the bad guys isn't always as easy as you may think. You can also look at a pilot roster and pick reality levels and regions of duty (Southeast Asia, Central America, the Middle East, and Western Europe). You also select a style of flying. Regular missions are the easiest, followed by volunteer missions and volunteer missions for hazardous duty. With increasingly difficult levels and areas of patrol, you face tougher missions and better opponents.

These helicopter simulations look similar to the fighter plane simulations, with detailed instrument panels and all; they just operate like helicopters. Although modern attack helicopters can go every bit as fast as some planes, the flight controls react differently to simulate the effects of helicopter flight. For example, nosing forward won't necessarily send you into a dive, but it will most certainly increase your speed over the ground.

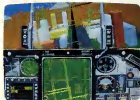
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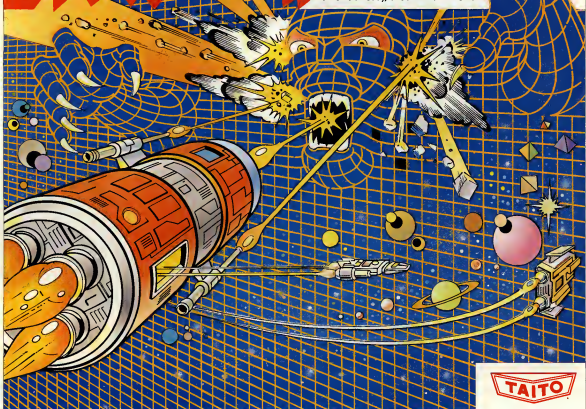
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PC Resource, July '88

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VEHICLES continued THE HIGH SEAS

Perhaps taking the helm of a ship is more like what you had in mind for a simulation. *Destroyer* (CGA, 256K, \$39.95) from Epyx puts you on the bridge of a Fletcher-class World War II destroyer, just like the ones in those old black-and-white war movies.

Your command of *Destroyer* can be lots of hands-on firing, tactical strategizing, or as much of either as you wish. There are thirteen stations on your destroyer—bridge, observation deck, navigation room, damage control, sonar, radar, port and starboard anti-aircraft guns and torpedoes, forward and aft guns, and depth charges. You can run around your ship like a madman staving off dive-bombing Zeros, enemy ships, and subs. But if you're in a situation that demands all that, it would be a better idea to put some stations on automatic.

The missions require working the various systems of your ship. Sub-hunter will have you monitoring the sonar and navigation for hunting down, and the depth charges for silencing, your target. Screen has you sitting at the port and starboard anti-aircraft guns to shoot down incoming Zeros after tracking their approach on radar. Convoy Escort taxes all your resources. Following each mission you receive a congratulatory message from COMDESPAC (Commander of Destroyers, Pacific Fleet) or a notice of failure and a "score sheet."

PHM Pegasus (CGA/EGA/HGC, 256K, \$44.95) from Lucasfilm Games has you skimming over the waves in a modern-day hydrofoil. The missions take you to all the current hot spots—the Persian Gulf, the Mediterranean, and the Caribbean. Your state-of-the-art hydrofoil is armed to the teeth with a 50mm cannon, Gabriel, Exocet, or Harpoon missiles, and radar-deflecting chaff for confusing incoming missiles. There is also a mission that pits past against the present, as *Pegasus* goes through a time warp and you have to use your superior weaponry to sink the mighty German battleship *Bismarck*.

PHM Pegasus is a fast-moving simulation of a fast-moving craft. You see your enemies on your radar screen long before they can cause too much trouble, but some of those boats can launch long-range missiles just as



PHM Pegasus



Silent Service

easily as you can. If your missile-lock indicator flashes on, you had better pay attention to incoming blips and be ready with that chaff gun.

For a more peaceful excursion, try the *Dolphin Sailing Simulator* (CGA/EGA/HGC, 512K, \$44.95) from Dolphin Marine Systems. You select your style of sailboat (a 42-foot ketch, a 29-foot sloop, a 19-foot catamaran, or a 14-foot catboat), set your sails and course allowing for wind direction and speed, and cast off. Like *Microsoft Flight Simulator*, the *Dolphin Sailing Simulator* has additional Voyage scenery disks that recreate sailing in Chesapeake Bay, San Francisco, New England, Florida, Lake Michigan around Chicago, the Long Island/Statue of Liberty area, Southern California, and Vancouver (\$24.95 each).

SILENT RUNNING

Few things could be more nerve-racking than command of a subma-

rine. Not surprisingly, there are several simulations that take you beneath the waves in a submarine on patrol during World War II.

Silent Service (CGA/EGA, 128K, \$34.95) from MicroProse is the star of the submarine simulation fleet. You can play out various historically accurate encounters with Japanese convoys or complete an entire war patrol selected from a specific period of the war (to better simulate factors that changed over the course of the war).

Silent Service incorporates several "reality levels" that simulate the problems sub captains really faced in the Pacific—convoy zig-zags, repairs that could only be completed at port, limited visibility, dud torpedoes (defective Mark 14 torpedoes were a very serious problem early in the war), and improved search techniques of Japanese destroyers.

The most impressive part of *Silent Service* is the operation of the sub in combat—tracking a target convoy, firing torpedoes and deck guns, diving, and evading sonar. The realism is gripping. Through your periscope, you can watch your torpedo find its mark and see your target erupt in flames and sink beneath the waves. You'd better clear the area after that, though, because destroyer escorts will be after you in no time. You can hear the enemy sonar pinging through the hull of your submarine when it makes contact with you. And when you hear the subsequent splash of depth charges being dropped, it's time for some serious evasive maneuvers.

Sub Battle Simulator (CGA/EGA/HGC, 256K, \$39.95) from Epyx is also notable for its historical accuracy and realism. It offers many similar submarine controls, but it is larger in its historical scope. You can choose to be an American submarine commander in the Pacific or a German Kriegsmarine U-boat commander in the Atlantic. You can go out on individual war patrols or try to last the entire war.

One nice feature of *Sub Battle Simulator* is the ability to transfer torpedoes from stern to bow and vice versa. This was frequently necessary, as most attacks were made with the forward torpedo tubes, and as in real life, it takes time to lug a 3000-pound torpedo the length of a submarine.

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VEHICLES continued

Another neat addition (although not necessarily a realistic one) is a side-view screen, so you can watch your sub diving and surfacing. You can also see any surface ships, and if they're attacking you, you can watch the depth charges they've dropped slowly sink and detonate.

Sub Battle Simulator also throws

a wider range of enemy craft at you—different size warships and convoy ships, dive bombers, and seaplanes. For each adversary you have an appropriate weapon—torpedoes (of course), your 5-inch deck gun, and anti-aircraft guns. The variety of enemies you encounter is a definite plus for *Sub Battle Simulator*.

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Spectrum HoloByte's *Gato* (CGA, 128K, \$14.95) and ActionSoft's *Up Periscope!* (CGA/EGA/HGC, 256K, \$29.95) don't score as high for graphic realism but are right with the fleet as far as submarine control, operating features, and historical accuracy. *Up Periscope!* even includes a shakedown cruise out of the sub base in New London, Connecticut.

One nice realistic feature of *Gato* is the ability to refuel, repair damage, and resupply your arsenal of torpedoes and deck gun ammo by visiting a sub tender. Other than that, you simply start off in the middle of the Pacific with a chart of your patrol area and a mission to complete. I prefer the extended war patrol routes of *Silent Service* and *Sub Battle Simulator*.

All the submarine simulations include extensive documentation on piloting your boat, plus notes on submarine strategy and descriptions of actual historical encounters. Take the time to familiarize yourself with what is involved in submarine warfare, and you'll have a more rewarding experience. *Up Periscope!* comes with a terrific booklet titled "Submarine Action in the Pacific" that provides an excellent background for taking command of your own submarine.

GENTLEMEN, START YOUR ENGINES

Who could pass up the chance to go screaming down the highway in an outrageously fast and wildly expensive sports car? That's what Accolade's *Test Drive* (CGA/EGA/HGC, 256K, \$39.95) lets you do. You can pick one of five rocket sleds—the Ferrari Testarossa, Lotus Turbo Esprit, Porsche 911 Turbo, Lamborghini Countach, or a Chevrolet Corvette—hop in the driver's seat, and take off down the Pacific Coast Highway.

Test Drive has all the risks inherent in a 150-mile-per-hour Sunday drive, not the least of which are radar traps. If you're really flying, you may be able to outrun the police when your radar detector goes off, but if not, you've got to pull over and suffer the consequences.

Pay attention to the highway signs also. If you go into a sharp curve too fast, you're going to hurl yourself over a cliff or slam into a mountain. Naturally, there is other traffic on the highway in both your lane and the oncoming lane. Rear-ending an 18-

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the midway

VEHICLES continued

wheeler will end your trip in short order.

When you reach the gas stations scattered along the way, *Test Drive* gives you a score and a comment on your driving that could be anything from "What's the matter, couldn't find third?" to "Pass any low-flying planes?" It's probably a good idea to avoid driving your own car after playing *Test Drive*, especially if you've taken the Lamborghini out for a spin. It could be a depressing experience.

If two wheels are more your style, hop on a racing bike in Broderbund's *Superbike Challenge* (CGA, 256K, \$19.95) and take on 12 of the world's most notable Grand Prix race tracks. You can control your superbike with the keyboard or joystick, and race by yourself or against someone else. Start the game, take a practice lap around your chosen course, and then it's race time!

To successfully make it around one of these Grand Prix courses, you've got to accelerate, upshift, downshift, decelerate, set up for and really lean into those turns. Some of the courses are exceptionally challenging, while others have longer straightaways and fewer sharp corners. You can ride on one of the selected tracks or compete in the entire Grand Prix, racing on all 12 tracks.

I challenge you to play *Superbike Challenge* sitting straight up, not leaning into your turns in an unnecessary effort to control your simulated racer. If you can, you have more self-control than I do.

THE FINAL FRONTIER

Arctifox (CGA/EGA/VGA, 512K, \$29.95) from Electronic Arts simulates a space-age battle tank sent to the South Pole to do battle with hordes of invading aliens. This game is similar to a flight simulation, except you're cruising over the ground instead of the air. *Arctifox's* control panel includes the usual array of instruments—radar, speed, fuel, and the status of your tank's lasers, cannons, and mines (which you'll need to fend off all the different kinds of aliens that will be visiting your tank). *Arctifox* is enjoyable and unique, but there is definitely room in the world of simulations for some good, historically accurate simulations of World War II and modern tanks.

Deep Space: Operation Coperni-



Test Drive



Orbiter

cus (CGA/EGA, 256K, \$34.95) from Sir-Tech puts the fate of the free universe in your hands. You are sent on one of four missions—collecting uranium from mining outposts, escorting an Orion envoy ship out of hostile territory, eliminating deadly virus organisms, and defending your Hercules base from an invasion.

From your SF181 Katana fighter, you have forward, left, and right screen views, or you can look at a map of your quadrant to see where you and your objectives are. You're armed with laser cannons and ion-thrust torpedoes. The consoles on your spacecraft monitor your weapons, fuel, speed, shields, and damage. There is also a radar screen to help you find the bad guys. *Deep Space* gives you a nice three-dimensional display as you pass planets and encounter hostile fighters.

The spacecraft simulations are similar to the jet fighter simulations, except you're flying through space

firing lasers and photon torpedoes. Otherwise, they operate in basically the same manner. Your choice of whether to simulate current events in an F-15 or alien invasions in a distant galaxy in the distant future is simply a matter of personal taste. They're all a great challenge and a lot of fun.

PUSHING THE ENVELOPE

All the simulations of space combat against alien invasions are imagined, but some simulations of space flight are based on reality, like Spectrum HoloByte's space shuttle simulation *Orbiter* (CGA, 256K, \$49.95). This is an extremely complex simulation, much more so than a regular flight simulation or one of the other spacecraft simulations. I recall seeing a photograph of a space shuttle astronaut standing next to all the textbooks and manuals that were his required reading, and the stack was nearly as tall as he was, so it's no wonder *Orbiter* is a complicated simulation.

Orbiter takes you through all the phases of space shuttle flight—count-down, launch, ejecting the booster rockets, orbiting and maneuvering, launching a satellite, reentry, and landing. You have simulated onboard computers at your disposal that will take care of some of the work, but there are still numerous commands involved in your mission. You could really get involved in this simulation, even though its learning curve is fairly steep. A nice touch on the first page of the extensive documentation is a dedication to the seven crew members of the space shuttle *Challenger*.

THE REAL THING (ALMOST)

So the choice is yours—pick a simulation and take it out for a test drive, test drive, or test flight. Whether you've always secretly yearned to be a submarine captain, a motorcycle racer, or a fighter pilot, there is sure to be a simulation to fit your mood. Simulation software has come far enough that it's all pretty close to the real thing.

—Lafe Low

Lafe Low is the review editor for inCider magazine and a regular contributor to inCider's "Games Editors Play" section. He spends much of his free time with flying, diving, and driving simulations.

JET

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FANTASY



Fantasy or role-playing games derive from the popular game *Dungeons and Dragons* invented by Gary Gygax back in the seventies. In *D & D* you assumed the role of a character with various skills, abilities, weapons, monies, and other stuff. You went into an imaginary world, slashing and hacking your way through encounters with various monsters, and if you survived you got stronger and stronger. When you got strong enough you could take yourself into even tougher imaginary worlds, fight tougher monsters, and so on. Game play was controlled by a person called the Dungeon Master (usually someone with sadistic tendencies).

While some of the rules and settings were rigidly defined, you were generally free to wander about casting spells, surviving attacks, and finding treasures, weapons, armor, magic elixirs, and all sorts of goodies.

The trouble with *D & D* was that you needed at least two people to play. If the Dungeon Master wasn't a good storyteller, didn't have much imagination, or hadn't spent hours and hours creating a world with all sorts of goodies, the game dragged. And sooner or later the Dungeon Master would want to play a game too, which could be a problem.

It looked pretty dismal for our intrepid heroes until...ta da! Along came personal computers to the rescue. Software developers had imagination, they could tell stories, and the computer was a tireless playmate who didn't mind being Dungeon Master all the time.

BIGGER THAN A BLUE DRAGON

What makes a role-playing game different from other computer games? On the surface there are a number of similarities. Most RPGs have a medieval/fantasy setting, like a Tolkienesque Middle-earth gone to seed, although some RPGs are set in outer space, the Far East, and other exotic settings. In all of them you are given some task, usually involving the tracking down and killing of some

supreme bad guy so that the blighted land can once again be free from evil. To accomplish this you "become" a character or a collection of different characters and then sally forth.

In the original *D & D* game you created characters by rolling dice for each attribute (speed, strength, stamina, karma, race, money, and so on). The computer does all this for you in most games, but in a few you are given extra points to spread about as you wish. If you want to be a wizard then you would need more intelligence points; if you want a good fighter then strength and agility are more important. As in real life, there is never enough to go around so there are compromises to be made. Usually you start out with very few skills, little money, and not much in the way of armor or weaponry.

The best way to improve your odds of survival is to beat up weaker creatures and steal their stuff. Money, weapons, clothing, armor, even magic items are usually found in the possession of other beings. In some of the games you can even try to steal things from merchants when they aren't looking. If the creature you just mugged isn't carrying anything you

want to keep for yourself, you can usually take anything that isn't part of its anatomy and sell it to one of the merchants back in town. Gather enough gold and you can buy that custom zirconium-encrusted broadsword with matching greaves you've had your eye on.

The other method for ensuring survival is to improve your skills. If your opponent rates a 197 in battle-axe wielding, a 235 in psychic defense maneuvers, and is wearing a magic suit of armor that would stop a howitzer shell, while you rate a whopping 4 skill points in pocket-knife whittling, barely enough psychic points to give yourself a headache, and have trouble buttoning your leather jerkin, then you can guess the outcome of this encounter. Improving strength, skill, talent, or whatever your character might need is one of the most important and involving aspects of RPGs, and it is the element that sets them apart from other computer games. A sidelight to this is that as your characters get better and more skillful, you get more attached to them.

Remember to keep your character disks in a safe place. When the sequel



In a Battle Helmet, No One Can Hear You Scream.

You can hear footsteps running on steel. Shouts in a strange language. Echoes.

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FANTASY continued

HINTS, TIPS, AND OUTRIGHT CHEATING

↑ Read the manual, take notes, think about it, then read it again. There are treasures hidden in those pages that could save your characters' lives.

↑ Heed the advice of the manual when it comes to putting together a team; playing with a variety of character types is more fun.

↑ Spend a lot of time creating your characters. Make a list of desirable attributes. Don't be afraid to reject a dozen or more characters until you get the attributes you are looking for.

↑ In the beginning characters get killed a lot. Just create a new one and save your money for a character more developed.

↑ New characters should stick close to the inn or town or whatever "safe" house there is until they have some equipment, weapons, and experience.

↑ Make lists of everything—characters, attributes, weapons, armor, spells, skills, items of interest, and so on. In town, list the prices of everything. Out in the wild, list the monsters you meet, how you beat them (or what you tried that didn't work), where they hang out, etc., for future reference.

↑ Make maps of everything—towns, buildings, streets, and especially dungeons. Write down every word that anyone speaks, any signs you read, scrolls you pick up, etc. They might help later.

↑ Don't worry about running away from fights in the beginning. At the same time don't feel guilty about picking exclusively on pickpockets, thugs, and other low-lives when you're just getting started.

↑ When getting started, take everything that isn't nailed down (and it's

even worth trying to take those things too). Later, when you know what is valuable you can pick and choose.

↑ In the beginning healers are very important. Keep them in the back, away from the fighting.

↑ Save the game often—before big battles, before going into dungeons, after you find something interesting, after you advance a level, and before you plan to use a magic item.

↑ Monitor characters carefully after using magic items or springing "no effect" traps. Sometimes the effects are delayed.

↑ Check your characters' inventory often, particularly before battles. You don't want to have that trusty broadsword hanging idly at your side while you fight barehanded. Make sure you are wearing your armor.

↑ In some multiplayer RPGs each new character starts with some money and/or supplies. Give everything to one character, buy him the best armor possible, then kill off the others. Create more new characters, and repeat until you have plenty of money and supplies.

↑ Many RPGs have banks that keep money in a character's name even after he dies. Create a new character, deposit all the money, get killed, create a new character with the same name, and repeat until you have a tidy fortune.

↑ Try to get into the mood of the game and your characters. When your characters come to life, when you cheer their victories and curse their failures you know you are getting your money's worth. Even if you never find the magic matzoball or defeat the evil wazoo, you can still have a great time and some interesting adventures.

THE ULTIMA SERIES

Origin Systems' *Ultima* series consists of *Ultima I* (CGA/EGA, 256K, \$39.95), *Ultima III: Exodus* (CGA, 256K, \$39.95), *Ultima IV: Quest of the Avatar* (CGA/EGA, 256K, \$59.95), and *Ultima V: Warriors of Destiny* (CGA/EGA/HGC, 256K, \$59.95). (*Ultima II* wasn't released for the IBM PC and compatibles.)

In *Ultima I* the lands of Sosaria are in trouble. An evil force has taken control of almost everything. The

good folk who live there are in dire need of a hero to help them destroy the necromancer Mondain. His foul denizens are everywhere: balrons, giant bats, carrion creepers, daemons, ettins, dark knights, gelatinous cubes, gremlins, and others even more dangerous.

Only Lord British is an ally to the pure-of-heart. In his town and castle you will find shops and a safe place to rest while you go about your task of restoring peace.

You begin by creating a character. You are given 30 points to divide between six attributes (strength, agility, stamina, charisma, wisdom, and intelligence). You then select a race (human, elf, dwarf, or hobbit), then a class or profession (fighter, cleric, wizard, or thief), and finally you give your character a name.

As is typical of all RPGs you start with little money, food, armor, weapons, or magical abilities. What you do have is an overhead map of the land and your character (represented by an icon). You move about the map using the arrow keys, and all your actions are accomplished with single-letter keystrokes (some of which may require additional keystrokes, such as a direction to shoot or what to select from a list of items). Included in the list of actions are attack, get, drop, enter, fire, search, steal, unlock, and spell (yes, there are magic spells to cast).

Across the bottom of the screen is a status bar that gives you a blow-by-blow description of the action and also tells you how much money you have, how many experience points, how much food, and how many "hit points." (Hit points are common in many RPGs. When you get hit you lose hit points. When your hit points reach zero you are dead.) While the battles in the *Ultima* series are not arcade-level shoot-outs, they do take place in "real time." In other words, if you run into some monster and then just sit there and do nothing, the monster will eventually kill you.

Even though *Ultima I* was one of the first RPGs, it still has one of the most richly filled worlds and is very playable. Plus, if you get through the first one there are three more *Ultima* sagas, each with new baddies to battle, new dungeons to explore, new spells to learn, and new weapons to master.

comes out you can move your characters into a whole new game, with new creatures to battle and new places to explore.

If the idea of assuming an alter ego in a fantasy world appeals to you, then here are some role-playing games for the PC that you might be interested in. The games reviewed here are representative of the different kinds of games in the genre. In future issues *PCGames* will look at other role-playing games.

NEW HOPE FOR BATTERED STORY GAMERS.

"THERE'S A LOT I LIKE about computer adventures, but it sure isn't fun getting killed all the time. That's why *Maniac Mansion* is so refreshing — I can play from start to finish without dying once!"

That's more than great fan mail. It's a very astute observation. Because while most story games treat



In *Maniac Mansion*, a movie-style "cut-scene" quickly establishes the characters' personalities.



Just three "clicks," and you'll send Zak McKracken over to the pawn shop counter to buy a pair of nose glasses.

interface, in most cases, remained in the swamp.

With conventional story games, whenever you want your character to do something, you type. And type. And type.

Suppose you want to pick up a green leafy object. Well, you might try typing, "pick up plant." If that doesn't work, you might try "bush," "shrub," "tree," and so on. After a while, you might try a different form of entertainment.

Not with Lucasfilm's new "point 'n' click" interface, though. All the words you need are right on the screen. Just click the cursor on them to choose characters, objects, and actions.

Now you can play an entire fifty hour game without typing a single word. Or putting your life on hold until you realize the green leafy thing is a...plastic fern.

MORE STORY. LESS GORY.

Most story game designers seem to think people love to get clobbered.

We don't. After all, how much fun can it be to have a fatal accident every three and a half minutes... then reload your saved game, take a few timid steps forward, and save it again. Seems more like paranoia than entertainment.

That's why Lucasfilm story games make it downright difficult to die. Oh,

you'll get into major hot water all right, but you'll have fun of getting out of it, too.

LET'S GET CRAZY TOGETHER.

Just pick up a copy of *Maniac Mansion*; the comedy thriller about a kidnapped cheerleader, a very mad

you like the meat in the dog food factory, Lucasfilm story games treat you like a human being who just wants some good clean fun.

The fun starts with an engaging plot, hot graphics and tasty puzzles. But what keeps it going is a unique design that lets you play the game instead of fighting the computer.

THE NO-TYPING INTERFACE.

Today's story games evolved from text adventures. The



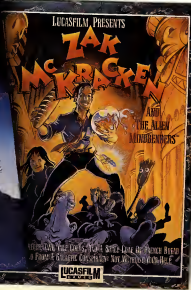
scientist, and a hilariously creepy rescue mission.

Or *Zak McKracken And The Alien Mindbenders*, where you and a seedy tabloid journalist save the world from space aliens who want us all to have the IQs of turnips.

You'll love the twisty plots and the goofy characters. You'll crack up constantly with the zany one-liners and sight gags. And you'll go just a little crazy with the mind-bending puzzles.

Crazy, but nicely crazy.

LUCASFILM GAMES



Maniac Mansion is available for IBM® PC compatible 640/286 and Apple II® IIx personal computers. Zak McKracken and the Alien Mindbenders is available for IBM® PC compatible 640/286 personal computers. All elements of the game features are trademarks of Lucasfilm Ltd. IBM is a registered trademark of International Business Machines Corporation. Apple II is a registered trademark of Apple Computer, Inc. IBM system shown. © 1988 Lucasfilm Ltd. All rights reserved.

the midway

FANTASY continued

Origin Systems added a lot of improvements with each version of the *Ultima* series. In *Ultima III* your party can have up to four characters. The designers added three-dimensional graphics in the dungeons, 16 long- and short-range weapons, 32 magic spells, 8 armor types, astrological influences, and an entirely different combat mode where you control each character's actions in a tactical display. With the added characters, however, you can't bring your old *Ultima I* character with you.

Ultima IV boasts a game sixteen times larger than *Ultima III*, with even better graphics, lots of new weapons, magic, and locations. And a text-adventure element was added. Now you must talk to people and ask questions in order to win. *Ultima V* goes even further. Improved everything. More of everything. If you liked the others you'll like this one, too.

THE PHANTASIE SERIES

Strategic Simulations' *Phantasie* series consists of *Phantasie* (CGA, 256K, \$39.95) and *Phantasie III: The Wrath of Nikademus* (CGA, 256K, \$39.95). (Again, I'm not sure what happened to *Phantasie II* but it doesn't look like version IIs are very PC-prone.)

These are games of incredible depth. Before you even begin you know that you are in for some serious game playing. (The box states "Playing time: 30 to 60 hours.")

You create characters by first selecting a character's race: human, dwarf, elf, gnome, halfling, or random creature, which might be a gnom, goblin, kobold, lizard man, minotaur, ogre, orc, pixie, sprite, or troll. Then you select a class: fighter, monk, priest, ranger, thief, or wizard. The computer then generates random values for strength, intelligence, dexterity, constitution, and charisma that fall into different ranges depending on the selected race and class. If you like the result you save the character; if not, you try again. You can create and save up to 37 characters, but your party can have only six.

The characters start out with a small amount of money in a bank account. They can spend this money on weapons, armor, food, drink, lodging, training, and bribes. If you want arms and armor there are 20 kinds of shields, 20 kinds of armor, and 60



Ultima V: Warriors of Destiny



Star Command

weapons to choose from. Each shield and type of armor requires a different minimum strength and prevents a different amount of damage. Each weapon requires a different amount of strength and dexterity and does a different amount of damage. Of course you need skill and training to get proficient with these weapons.

Magic is an important item in *Phantasie*. You can use over 60 spells: combat spells (passive and active), noncombat spells (town, wilderness, and dungeon), and everywhere spells. There are also rings, scrolls, wands and amulets, and potions (10 healing potions and 10 magic potions). And, if you want more, you find charmed, spelled, and cursed objects here and there.

When you leave town, you are presented with an overhead map view of the terrain with your party represented by an icon. During combat, however, the screen changes to close-up representation of the party showing each individual.

When you encounter baddies you can decide who is going to stand in the front and who is going to stand in back. You can also pick and choose your targets as they attack from the top of the screen. During combat the characters with the quickest reactions get to act first and the options are extensive (including thrust, attack, slash, lunge, parry, greet the monsters, beg for mercy, run away, etc.). The fights are not in real time so you can think about what you want each character to do.

Beyond fighting and wandering about, you try to gather enough money, treasure, weapons, armor, and experience to go back to one of the towns, rest, heal, train some more, learn a few new spells, or buy a few more goodies so you can go out and beat even nastier monsters.

If you get the idea that *Phantasie* is a complicated, ornate, highly detailed giant of a game with dozens and dozens of options, spells, weapons, characters, monsters, and more—you're right. You don't just sit down and casually play *Phantasie*, you devote a part of your life to it.

STAR COMMAND

Strategic Simulations also makes *Star Command* (CGA/EGA, 256K, \$49.95), which takes place in the distant future, when humans have colonized the stars. They have gone farther both in distance and technology than ever dreamt possible. But with their roaming they have brought with them some of the old evils—greed, violence, and murder—and they've even found some new ones. Now that Earth is just a dim memory, the human race controls what is called "the Triangle," an area loosely defined by three great stars. Beyond the Triangle there is the Alpha Frontier. Once a great mining area, it is now so overrun with pirates that it is considered enemy territory.

On another of the three sides is the Beta Frontier, an area claimed by a race of intelligent insectlike creatures. All attempts to communicate with them have failed and *Star Command* strongly suspects that the insects are planning an invasion of the Triangle. Beyond the final border is unknown territory. A few robot ships have been found there but it is uncertain who built them—insects or perhaps some long-forgotten human

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FANTASY continued

experiment gone astray. For the moment the robots pose no threat, but it doesn't hurt to keep an eye on them.

Within the Triangle, Star Command tries to protect and keep the peace, but it is an uphill battle. Funds are scarce and many times "green" troops are sent out on dangerous missions with little or no training. In true entrepreneurial style Star Command lets their soldiers operate with a great deal of independence. They can pick and choose their own weapons and even do some trading. And, like the privateers of the eighteenth century, they are free to outfit their ships any way they see fit, as long as they pay for it.

You command a group of eight characters through a variety of missions. From the initial eight years of basic training to the purchasing of weapons, armor, ammunition, and the outfitting of a spaceship and beyond, you are in control. Star Command gives you your first missions

and if you come back alive you are rewarded. If not . . .

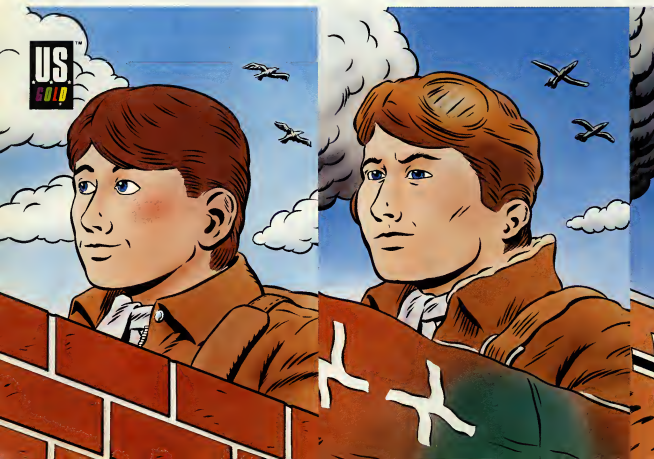
Star Command is another SSI game of great complexity and detail. Your characters can be pilots, marines, soldiers, or ESPers. Their starting attributes of strength, speed, accuracy, courage, willpower, ESP, and intelligence are chosen by the computer (you can elect not to accept a character and try again if you don't like the numbers). There are also secondary attributes such as hit points, defense, maximum number of kilograms carried, movement rate, and so on. If you accept a character you then decide how each of its eight years of basic training will be spent (each character type can train in different areas, such as medical, astro gunner, pilot, ship repair, explosives, officer's school, etc.).

When you have put together a team you are given a certain amount of money to buy a ship and equipment. In the beginning you won't be

able to afford a big fancy ship or lots of sophisticated weapons. There are 54 personal weapons, various types of armor (both for your characters and the ship), sighting hardware (to artificially aid your accuracy in a fight), scanners, motion detectors, torches, medkits, and on and on. There are 9 classes of starship to pick from and a slew of armor, weapons, anti-weapons, drop ships, computers, engines, and other equipment to consider.

Here is where you should spend a lot of time picking and choosing. Write everything and every price down before you start that shopping spree. Decide who needs what and how much it will all cost and then make your choices. You might even consider dropping a member of the team so that you can train someone with slightly different skills.

Once you are ready to go, you christen your new ship, report to headquarters for your first mission



(different each time you play), and then head out. Getting around the galaxy isn't very difficult. You simply move the cursor to where you want to go and there you are (minus the fuel and time it took, of course). The display shows a map in which you can zoom (in five increments) in or out from galaxy to planet levels, messages, fuel, armor, status, weapon and squad status, and ship orientation. This display changes, depending on the circumstances. The galaxy is divided into a 32 by 32 grid. When you zoom in to a planet and maneuver near enough, the display changes to give you information about the planet.

Combat is handled in three phases: a communications phase, in which you try to bully your way out, talk, surrender, or whatever comes to mind; a movement phase, in which you try to close on the enemy or run away; and then the actual combat phase, in which each of your charac-

ters (and the enemy) gets a shot (or a load, or an aim, or a run-away). There are no restrictions on movement (your characters are not stuck at the bottom of the screen while the bad-dies come down from the top) and each situation is likely to be different. Hand-to-hand combat can get very tricky because the terrains are different, the atmosphere may be unbreathable, and the gravity is not always "Earth standard."

Star Command is a very rich game that should take between 40 and 60 hours to play, and unlike other RPGs you can play it more than once. The graphics are good, and the dozens of options combined with the thousands of details make it as realistic as a computer game set in the far future can be. Of the few RPGs not set in the traditional world of magic, *Star Command* is near the top.

MOEBIUS

Another of the few RPGs that don't

take place in a software version of Middle-earth is *Moebius: The Orb of Celestial Harmony* (CGA/EGA/HGC, 256K, \$49.95) from Origin Systems. It is set in the Year of the Yak, when Kaimen, disciple of Moebius the Windwalker, stole the Orb of Celestial Harmony and set himself up as Warlord of the East Wind. He imprisoned the holy ones who kept the shrines of Moebius and has brought so much pain and suffering to the people of Khantun that the very Earth trembles, animals have gone wild, and rebel guards and assassins highly trained in the martial arts are everywhere. Only one who has training in the sword, the martial arts, and Zen could hope to travel the fourfold path, drive out the false priests, and return the holy ones to their shrines. You, Grasshopper, are the chosen one.

You start out with little but your bare hands and a few prayers. The training is in three parts: martial arts (hand-to-hand combat), the sword,



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Enemy fighters zoom above you, anxious to turn you into fish food. And all around you lurk treacherous U-Boats, E-Boats and mine fields.

Steady, mate. Remember all those practice flights?

Now it's for real. You've got position reports to monitor incoming intelligence. A fully detailed instrument panel. And you can fire from one of two gunnery positions. All of which'll come in mighty handy when you've got 42,000 tons of riveted killing machine in your sights.



WELL CAPTAIN, IT LOOKS LIKE F-15 STRIKE EAGLE™ ISN'T SO STRIKING, AFTER ALL.

	DIVE BOMBER	F-15 STRIKE EAGLE
Easy to use, fully detailed instrument panel	Of course	Nope
Look of enemy planes & ships	True to life	Stick figure
Pace of enemy attacks	Constant	Lagging
Takeoffs	Breathtaking	Nonexistent
Landings	Brace yourself!	Limited

Note: Comparisons are based on current Apple II, IBM, and Commodore 64/128 versions of the product. Apple II Series II and Commodore 64/128. IBM PC A. Commodore 64/128. Scores from Atari ST version of the game. © U.S. Gold is a trademark of U.S. Gold America Ltd. Game program licensed from U.S. Gold America Ltd. © 1987 Activision and Graphics Graphics Ltd. © 1989 Epyx, Inc. F-15 Strike Eagle is a trademark of McDonnell-Douglas.

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the midway

FANTASY continued

and concentration (keeping a frenetic yin-yang symbol within a square with the arrow keys). The hand-to-hand and sword combat training and later encounters are real-time affairs where you control the action with the keyboard.

This game presents a fully animated side view of you and your op-

ponent that takes up the top half of the screen. There are five types of actions, each with either a long or short (punch or kick) variation—move forward or backward, aim high, middle, or low. This takes some practice, so you might want to spend extra time in the training arena.

Once you have completed the three

training areas you set out on your mission. You are given three resurrections at the start but may earn more for each monk you rescue from Kaimen. The display is an overhead close-up map showing only four or five squares around you at a time (you and everyone else are displayed as a head-and-shoulders icon, which looks like you're swimming rather than walking through the earth and bamboo).

There are only a handful of options such as swing sword, throw shuriken, hit with hammer, get, listen, magic (five magic prayers), use item (six magic charms), communicate with another character, and so on.

Overall *Moebius* has more action than most RPGs, better graphics and sound, and one of the more unique settings; however, it seems a bit limited in scope and options. It is hard to identify with your character when you don't have much control over the advancement, and the arcade-style combat gets longer and longer as you face tougher opponents. It has a lot of good things going for it but could have been better.

THE BARD'S TALE

In Electronic Arts' *The Bard's Tale* (CGA/EGA, 256K, \$39.95) you find yourself in the city of Skara Brae. The time: long ago when magic still prevailed. The villain: Mangar the Dark. The mission: to explore the city, develop your characters, and defeat Mangar. Your crew is made up of six gallant heroes from seven races and ten classes. The tools consist of 85 different spells (plus six bard songs), assorted weapons, armor, magic rings, horns, wands, and so on. Your obstacles are numerous monsters and bad guys, 16 different mazes, and, of course, Mangar himself. Help is in the form of Garth's Equipment Shoppe, where you can buy and sell almost anything; the taverns, where you can get a tankard of something cool to drink; Roscoe's Energy Emporium, where you can get your spell points restored; the temples, where monks can cure anything from a hangnail to death, if you have enough gold; the review board, where you can advance a level or three with enough experience points; and the Adventurer's Guild, where it all begins.

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SOFTWARE

the midway

FANTASY continued

the game's predefined group). You first pick a race and the computer randomly generates five basic attributes (strength, intelligence, dexterity, constitution, and luck) based on the race of the character. If you like the numbers, you pick a class, give your character a name, and add him to the party. Once you have your band together (each character starts out with a certain amount of money and equipment), you set out to explore the city.

The game display is divided into three sections. The bottom shows your characters and their stats, the top right displays messages, and to the top left are your views. The views of the city are three-dimensional ones that scroll one set of houses or streets with each press of a key. When you encounter a monster the view is switched to an animated picture of your foe, brandishing its weapons, sneering, burling, and being generally monstrous. All the graphics in *The Bard's Tale* are exceptional.

Combat is not represented graphically. At the beginning of combat you are told how many enemies you face (up to four groups with 99 members in each group). Fighting then takes place in "rounds." Each character is given a choice of options and then the action for that round is carried out: the faster characters (or monsters) will get their turns first. Only the first three characters can engage in physical combat, but those in the back ranks can cast spells.

Combat options are a little limited (except for magic). All you can do is attack, defend, use an item, cast a spell, attempt to hide in the shadows, or sing a song (this may sound silly, but if you're a bard the right song can do wonders in a fight). If you survive the fight you collect the loot and each member of your party gains experience points.

One of the best things about *The Bard's Tale* is that you aren't told very much at the beginning. You have to go out and find things, solve puzzles, make your own maps, and develop fighting styles. There is a lot to find and a lot to find out. The graphics and music are very good, the system of fighting and moving about is simple and easy to use, and if you like casting spells there are a lot of them. Character advancement is a big part of this game. The only



Moebius: The Orb of Celestial Harmony



The Bard's Tale

drawbacks are the difficulty in getting your characters off the ground; new adventurers have a tendency to get killed a lot, and there is a temptation to just hack and slash, advance a level, hack and slash, and so on, until your characters are just this side of gods. All in all, though, *The Bard's Tale* is one of the best RPGs on the market.

SO THIS IS THE MAGIC STAPLEGUN?

There are other RPGs for the PC and more are on the way. It would be impossible to cover all of them in one article, so I tried to pick some of the unique ones that were representative of the genre. The common elements in all RPGs are that your characters do not remain static throughout the game. They grow, or at least change, hopefully for the better. There is more than one solution to the game even if there is only one goal. All of them take quite a while to play. All

offer various degrees of complexity, but even the most superficial RPG is much more detailed than other types of games, except, perhaps, some of the strategy games.

Finally, role-playing games, if they are done right, draw you in. By watching your characters improve, survive tougher and tougher conflicts, gather weapons and armor and treasure, you begin to identify with the characters. You cheer them when they win a tough fight and curse them when they get themselves killed. Sometimes you end up going farther than you should to revive your characters just because you have become so attached to them. You begin to give your characters personalities of their own beyond the confines of the game and begin to imagine how they might look.

One final note: While many RPGs have sequels, don't expect *Dog Quest III* to be just another variation of *Dog Quests I and II*. The developers are constantly working to improve their games, so while you may have had only one character in the first, you may be controlling four characters in the sequel. There may be twenty-seven new spells to learn and maybe the six you learned in the last game won't work in the new one. Also, don't expect to bring everything with you. Many sequels let you use characters from earlier versions, but some of them take away weapons, armor, spells, and sometimes experience. While most sequels allow you to start a whole new batch of characters and play without ever seeing the previous versions, some require characters created in those earlier games. So if you are thinking about jumping right in with *Dog Quest IX* because it should be nine times better than the first one, you should read the package carefully to see if you might need characters created in *Dog Quests I* through *VIII*. In any case, expect to spend a lot of time playing these games. They can be very addictive and a great deal of fun.

—Guy Wright

Guy Wright is the editor-in-chief of AmigaWorld magazine and author of Heroes of Zana Keep under the name Guy Gregory. He has spent much more time than he should have playing and writing computer games over the past seven years. Just ask his wife.

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STRATEGY



You'll probably never become president, or a general, or a big-time stock manipulator. But with the right strategy game for your PC, you can experience some of the power, thrills, and anxiety of these positions in the comfort and safety of your family room. Strategy games give full reign to the imagination, letting you wrestle with problems and situations you never encounter in the everyday world. In fact, the best thing about strategy games is their ability to engage and absorb the game player.

If you read computer magazines, you've run across scores of so-called overview pieces, articles that introduce a category of software or hardware and then list every manufacturer in the category and describe every product as "a valuable addition to your software library" or "worthy of your consideration." This overview, however, is slightly different. I don't cover even a large minority of PC strategy games; rather, I describe the games that I like the best and play the most.

JOYSTICK JUNKIES BEWARE

Although all computer games require a strategy of one form or another, only in strategy games is the design, development, and implementation of a consistent plan of action so vital. If an arcade gamer makes a wrong turn, he can often extricate himself with a few deft flicks of the wrist. Similarly, an adventure gamer has numerous opportunities to backtrack and try other avenues. In strategy games, however, you don't often get a second chance.

Strategy games should combine the complexity of adventure and role-playing games yet offer more realistic (for the most part) situations. Although many strategy games are abstract and fictional, they are rarely fantastic.

LINING UP THE DUCKS

I divide strategy games into three basic categories, based on the type of situation the game simulates.

Abstract strategy games do not try to emulate any situation that was, is,

or could one day be real. The best example is chess. Although it was developed as a stylized war game, the movements of pieces on a chess board have no relationship to the movements of military units on a battlefield.

Many people feel that abstract games are the purest and therefore the best strategy games. Since I like some connection between the games I play and the real world, I disagree. The important thing, however, is to know the type of games that you like.

The second type of strategy game creates a fictional world or situation. These games are best represented by outer-space games. The games create fictional universes complete with their own laws and attributes. Normally, your job in such a game is to colonize a planet, star system, or an entire universe. Because game designers have fewer restrictions creating a fictional world than they do recreating the real one, fictional strategy games resemble abstract ones in that a designer doesn't have to let the facts get in the way of a good game.

The final type of strategy game simulates some real-world system or event. Real-world games are the most popular strategy games and, because gamers are usually familiar with the situation being simulated, they are the hardest to design. In my opinion, they are also the most interesting.

TAKING AIM

The best abstract strategy game is *The Chessmaster 2000* (CGA/HGC, 256K, \$44.95). Created by Software

Toolworks and published by Electronic Arts, *Chessmaster 2000* is the best chess-playing program I've ever come across. It looks the best, plays the best, comes with the best documentation, and has more options than I'll ever use.

At its core, *Chessmaster 2000* features a very intelligent chess-playing algorithm. The "2000" refers to the rating you need to achieve Expert status from the United States Chess Federation. Under tournament time controls, *Chessmaster 2000* will give an expert a very strong game and will outplay about 90 percent of the chess players in the world.

Around this core, Software Toolworks has built a fun game with many options. For instance, you can set different time limits for the game (the longer it thinks, the better it plays) and set the program's style of play. In Normal mode, the program mixes some random moves with what it considers its best moves. In Best mode, the computer always plays its best move. The third style, Coffeehouse, features more random moves than Normal mode.

Other options let you take back moves, choose black or white, save and load games, and allow the program to access its library of opening variations. *Chessmaster* lets you choose between a two-dimensional or 3-D view of the board, and you can rotate the board in 90-degree increments. You enter your moves either by using chess notation or by moving the positioning cursor.

Chessmaster is a game you'll prob-

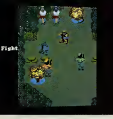


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STRATEGY continued

ably never outgrow. Its numerous levels of play will keep pace with you as your chess-playing ability develops. And if, like me, you don't anticipate getting much better, *Chessmaster 2000* should last you a lifetime. What other computer game can you say that about?

ON TARGET

My favorite fictional strategy game is Interstel's *Empire* (CGA/EGA, 512K, \$49.95). This game takes place on a distant planet in the far future. (You can design your own planet or have the program generate one.) Your job as commander of the Alliance forces is to secure the planet for the Alliance. You face up to two human or computer opponents in a race to put the entire planet under your control. This is a do-or-die mission: You either conquer the planet or get wiped out.

At the beginning of the game, you command one city (out of scores on the planet) and six armies. From this base, you explore the planet and expand your control. As you conquer hostile or neutral cities, you control their production, allowing you to replace combat losses and build units such as fighter squadrons, battleships, aircraft carriers, destroyers, and transports.

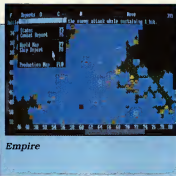
Seaborne invasions are the trickiest problems you'll have to solve as you expand your empire. In preparation, you have to balance your production of land, air, and sea units. You have to further balance your naval units between transports, escorts, and offensive units. You then have to coordinate the completion times of the different units, assemble the invasion force, and set sail. Nothing is more frustrating than to see your invasion force held up by a lack of transport or sunk due to an inadequate escort.

Although it comes with a daunting reference manual, *Empire* is not a difficult game to learn. Fact is, you'll get a lot of practice with the game mechanics because *Empire* takes a long time to play—a 40-hour game is not unusual.

The reason I like *Empire* so much is that it presents complex strategic problems that are not merely a function of complex game mechanics. In other words, in this case the total is more than the sum of the parts.



The Chessmaster 2000



BULL'S EYE

Real-world simulation games are the broadest category of strategy games. Included are games that simulate jury trials, network-television programming, the stock market, and running a business. These types of games are fun, but they're too mundane for my taste. My favorite real-world simulations are political/economic simulations and war games.

Among war games, my favorite is *Gettysburg: The Turning Point* (CGA, 256K, \$59.95) by Strategic Simulations. Granted, I'm biased toward anything that deals with the Civil War era—I think this is the most interesting and most important era in our history—but *Gettysburg* is a cut above most war games. It gives you an understanding of the problems that faced generals Robert E. Lee and George Meade during those three days in July 1863, and of the capabilities, organization, and tactics of Civil War armies in general.

Gettysburg lets you play against another person or against the com-

puter. Once you've made your initial selections, it's July 1, 1863, all over again. The Army of Northern Virginia is about to crash against the Army of the Potomac.

You control the individual units of either the Confederate or Union army. Infantry and cavalry units are composed of demi-brigades and named for their brigade commander; thus, the Union Iron Brigade (First Brigade, First Division, First Corps) is divided into Meredith-A and Meredith-B. Each unit contains from 400 to 1400 men and is rated for factors such as morale, fatigue, organization, ammunition, and fortification level. Artillery units are aggregates of from two to five batteries.

At the beginning of a turn, each unit gets operations points based upon how close the unit is to the other half of its brigade, and the proximity and quality of its division and corps commanders. Units expend operations points when you move them or when they engage in combat. During a player's turn, he first moves his units. Before he can fire on the enemy, however, the enemy units perform defensive fire. This demonstrates the advantage that units on the defensive had in the Civil War: They got their licks in first.

The number of casualties a unit inflicts is proportional to the number of men firing, the range to the target, the effectiveness of the unit (a function of morale and fatigue), its weapon type, terrain, fortification level of the target, whether you're firing into the flank or rear of the target, and the number of operations points remaining to the unit.

The object of *Gettysburg* is to inflict lots of casualties on the enemy while minimizing your own, and to occupy as many of the strategically important victory squares as possible. To win the game, you must maintain a tight organizational structure (keep brigades of the same division together; keep divisions of the same corps together) and maneuver your units to give yourself advantages in numbers, effectiveness, and terrain over the enemy.

Gettysburg is a highly detailed, highly complex simulation of one of the most important battles of the American Civil War. It is a very long game, but it rarely fails to keep you absorbed in the unfolding drama.

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STRATEGY continued

BEST OF THE BEST

My favorite PC strategy game is *Nobunaga's Ambition* (CGA/EGA, 256K, \$59.95) from Koei Corporation. A political/economic/military game based upon medieval Japan, *Nobunaga's Ambition* is simulation on a grand scale. At the beginning of the game, you take the part of a daimyo,

a Japanese lord. You control one of 50 fiefs (17 in the abbreviated game). The object of the game is to conquer all the other fiefs and unify the country under your rule.

If you've read James Clavell's *Shogun* or seen the television miniseries, you're already familiar with the period in which *Nobunaga's Ambition*

takes place. In fact, the Lord Toranaga of *Shogun* is based upon Tokugawa Ieyasu, the medieval daimyo who united Japan and started the Tokugawa Shogunate, which ruled Japan from the early seventeenth to the late nineteenth century. Tokugawa is one of the daimyos you must overcome to win the game.

Although military conquest is vital to the game, *Nobunaga's Ambition* is primarily a political and economic simulation. More important than how you wage your relatively infrequent battles is how you manage your fiefs. You have to juggle sometimes conflicting factors such as taxation rates, peasant loyalty, army training and loyalty, flood control, land under cultivation, and town expansion to achieve a balance that lets you increase your army without destroying the economy of your fief. You also have to conduct external diplomacy and deal with natural events such as plagues and typhoons. Finally, you have to be a shrewd trader: You have to get the best possible price for your rice, while buying supplies when prices are down. On the whole, you've got a lot to do when playing *Nobunaga's Ambition*.

Using seasonal turns, *Nobunaga's Ambition* runs from the year 1560 until you unify the country or die (of natural or unnatural causes). Although the 50-fief game can take 20 hours to play, you can usually finish a 17-fief game in one sitting. The game is so absorbing that you won't notice the hours go by.

Nobunaga's Ambition is steeped in Japanese history and culture. The documentation includes background information about medieval Japan as well as biographies of the 50 daimyos. This game has a grand sweep that I find irresistible. You will too.

Chessmaster 2000, *Empire*, *Gettysburg*, *Nobunaga's Ambition*: four games that will challenge, frustrate, absorb, and delight you. If you're looking for a game with depth behind the glitter, these games will not disappoint you.

—Bob Ryan

Bob Ryan is the technical editor of *AmigaWorld* magazine. He has been hooked on strategy games since 1980, when he bought Computer Bismarck for his Apple II Plus.

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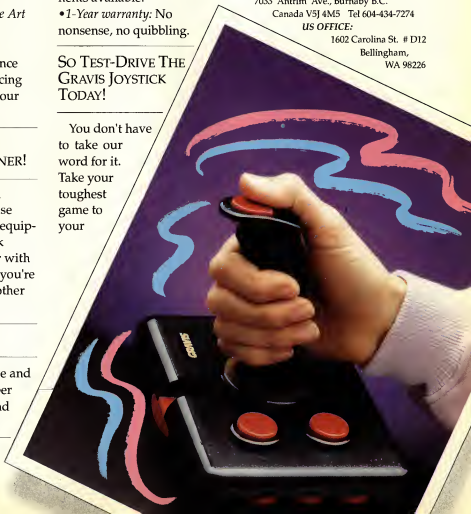
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ADVENTURE



Adventure, the original game that today's adventure-type games are patterned after, began in the early days of mainframe computers. It was designed by programmers with a little extra time on their hands who wanted something to relieve the tedium of large-scale software engineering.

Adventure games are still extremely popular, with new games appearing all the time. But there are now different categories of adventure games. These are based on the computer technology required to play the game rather than the type of story.

There are still text-only games like *Zork*, but because of the widespread availability of advanced graphics on today's computers, many adventure games come with beautifully detailed pictures that enhance the story with an artist's touch. With some adventure games the graphics are meant to be mere illustrations (like pictures in a book), and in others the images are an integral part of the story. There are even adventure games that combine text, sound, and graphic animation into a three-dimensional multimedia entity.

It would be impossible to cover all adventure games available for the PC in one article, but I'll look at examples of each type. Those I reviewed are representative of the universe of PC adventure games. Where possible, I will list the hardware and memory requirements of any games discussed.

TEXT ONLY

Today's text adventure games are far more than simple exploratory games; they are sophisticated interactive novels. Many of the storylines are authored by professional fiction writers, whose talents are combined with the power now available in computers to produce a level of quality undreamed of by early adventure game creators.

If any company symbolizes adventure games it would have to be Infocom. Its roots in adventure gaming go all the way back to the beginning. Some of its founders were involved in

programming the original *Zork* on mainframe computers. They saw the commercial promise of games on personal computers and for their first product adapted *Zork* to the microcomputer.

All Infocom games support advanced text parsers and are able to understand even the most complex statements. Most have vocabularies of nearly a thousand words. Some of the latest games have automatic map making and online help facilities as well. Let's look at a few of the many text adventures from Infocom.

LIFE AMONG THE ZORKS

The original *Zork* was far too large a game for a micro, so Infocom separated it into three individual games, *Zork I: The Great Underground Empire* (192K, \$39.95), *Zork II: The Wizard of Frobozz* (64K, \$44.95), and *Zork III: The Dungeon Master* (64K, \$44.95). Recently Infocom re-released the three *Zork* programs together as the *Zork Trilogy* (64K, \$52.95). Each is still an individual game that can be played to completion without the others. They represent different levels of difficulty and sophistication, so beginners should probably start with the first and work their way up to *Zork III*.

Zork I is the introduction to the *Underground Empire*. Here your main

objective is exploration and treasure finding. There are mazes and puzzles to solve, and a few monsters and thieves to battle. *Zork I* is a classic adventure and one that every adventure gamer should play.

Zork II is somewhat more difficult than *Zork I*. Its puzzles are harder and its mazes more complex. To make matters worse, the Wizard of Frobozz appears at random intervals, harassing you with magical spells. *Zork III* adds a *Dungeon Master* and mazes and puzzles that are more complex yet. To win in *Zork III*, you must discover where you are and why the *Dungeon Master* put you there. This one is tough.

For fantasy gamers, Infocom has *Enchanter* (64K, \$14.95). In this game you are a novice magician sent to do battle with an evil warlock. Unlike *Zork*, your goal is not to find treasure but to find and learn magic, increasing your arcane skills until you are able to take on and vanquish the evil warlock. *Enchanter* is a fun game of about medium difficulty. It is one you will be able to play to completion (with a little work). And if you like the genre, Infocom has two additional games in this series, *Sorcerer* (64K, \$44.95) and *Spellbreaker* (64K, \$49.95). You can buy all three in the *Enchanter Trilogy* (64K, \$44.95).



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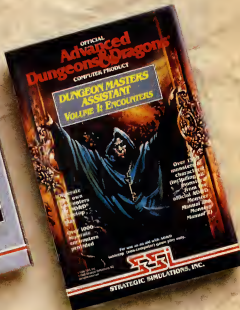


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ADVENTURE continued

TRAVEL, ROMANCE, AND MYSTERY

One of my favorite books and TV shows is available as a text adventure, *The Hitchhiker's Guide to the Galaxy* (192K, \$14.95), also from Infocom. This is an amusing comic adventure based on the book by the same name, and it was written by the original book's author, Douglas Adams. In *Hitchhiker*, you play the role of earthling Arthur Dent, who escapes Earth's destruction and roams space and time with a very odd as-

sortment of characters.

For a change of pace, you might try *Plundered Hearts* (64K, \$39.95) by Infocom. This is the first adventure game that plays just like a romantic novel. You play the part of a brave young seventeenth-century woman who must face pirates, storms, crocodiles, and the dangers of love as you attempt to rescue your father.

Infocom has several detective adventures, and the newest is *Sherlock: The Riddle of the Crown*

Jewels (192K, \$42.95). In this adventure you play the part of Dr. Watson, friend and assistant to the immortal Sherlock Holmes. You are faced with a baffling crime: The Crown Jewels are missing and you have only 48 hours to solve the puzzle—and there is a plot to kill Holmes thrown in. *Sherlock* comes with on-screen hints that can help you find clues you might otherwise miss.

ALIENS, SPIES, AND OTHER GUYS

From detective to spy is a natural transition. *Border Zone* (192K, \$42.95) is a new Infocom game that combines international intrigue with an interesting twist; you play three different characters, an American businessman, an American spy, and a Russian KGB agent. You must travel behind the Iron Curtain to prevent the assassination of the American ambassador.

Another interesting text adventure is from First Row Software. *Dr. Dumont's Wild P.A.R.T.I.* (128K, \$39.95) is a bizarre trip through the mind of an insane computer with which you have become mentally linked. This game has excellent descriptive text and a sophisticated parser. It was created by Michael and Muffy Berlyn, authors of several popular games.

From text-only games I progressed to adventures where the text is intermixed with graphics. All of these games have the minimum requirement of a CGA-compatible graphics card, and many support the more advanced graphics systems like EGA.

From Sir-Tech Software comes *The Seven Spirits of Ra* (CGA/EGA, 128K, \$49.95). This is a real-time adventure, meaning that time continues to pass in the game, even if you do nothing. The game is based in Egypt 3000 years ago, where you are given the task of finding the seven souls of Osiris. Graphics plays an integral role here, with animation throughout. In fact, this game would have been classified an "arcade adventure" but for its strong story line. While the program presents you with messages and religious writings, actual text input required from the player is minimal.

If you like games with a science fiction flavor, you could try *Oo-Topos* (CGA/HGC, 256K, \$19.95) from Po-

CHOOSE YOUR POINT OF VIEW

Infocom, one of the leaders in quality adventure game publishing, recently teamed up with Tom Snyder Productions to produce a new concept in entertainment software called Infocomics, a line of computer-based graphic comic books. They are not adventure games, where what you do affects the outcome of the game. In this software you play the role of observer, just as you would if you were reading a paper comic book. The ending of the story always remains the same.

But Infocomics are not merely static pictures on the screen either. The scenes are drawn in a three-dimensional perspective, and they are animated. You have the ability to page forward and backward through the story, as well as set bookmarks to save your place for future sessions.

There is an even more important feature that makes Infocomics unique: point of view. I don't mean merely the location of your eye as you view the scene, although there is that element. It's whose eye you are using that makes these comics so different. The designers have given you the ability to see the story unfold from the point of view of different characters, and each character sees the world and the other characters in a slightly different perspective.

To date there are three Infocomics available, although like all comic books, new issues may come out at regular

intervals. The first is called *Gamma Force in Pit of a Thousand Screams*. It centers around a trio of sci-fi superheroes (the Gamma Force) who must free their planet from an evil overlord. This is the first issue about the Gamma Force, and it explains their origins as well as the main storyline.



Next is *Zork-Quest: Assault on Egrest Castle*, a comic about adventuring in the famous Great Underground Empire. It has many of the elements found in the *Zork* adventure games, with a strong fantasy theme.

Finally there is *Lane Mastodon vs. the Blubermen*. In this comic strip, the central character is Lane, the accountant who becomes a superhero and saves the earth from Blubermen. It is meant to be a comic spoof of the 1930 action serials that kids went to the movie theaters each week to see.

It is important to remember that these are not games. They are interactive computer entertainment, but they have a set outcome that is unchangeable, just as the final page in the comic book is set. If you follow every character throughout the story, you can finish in about an hour or so, depending on your reading speed and how many times you rewind the strip and watch a scene over again. They are not expensive (\$12) and should make a great present for the comic book lover in your household.

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Adventure Addiction Under The Ice, Quest of Kikukura, Gymnasium, Palace & Brimmar test adventures. Indiana Jones, where are you? (#626) *

AdventureWare Test adventure for mystery fans and those who like horror (#633).

Amnesia's Letter Loto My 6 year old gives it an A+! ABCs & Spelling fun. (#616)

Amulet of Vendor Move through mazes filled with sudden death as a knight, wizard, warrior, cavalier or brute. You won't last long! "One of the most addictive games I have ever played!" (#652)

Amy's First Primer Busy Fun ABCs, Love The Truck, Help The Frog ages 2-5. (#656) ***

Arcade Series Pango, Blinks, 3 Demons and more! (#650) *

AstroBolt Astrology program prepares your zodiac chart! (#655) *

Backgammon & More You against the computer! Also, Hangman in Spanish! (#708)

Battle Games Pacman, Breakout, Castle, Spacewar, Wizard, Spoozies, Wizard (#674) *

Beyond the Titanic Your ship is sinking, now what? Masey? King of the Kingdom of Kitee! Luff! Bring your power whip. (#653)

Bible Man Who's Who with the Bible! (#781)

Bible Quiz Plus Religious trivia play for 1-5. (#674) *

Biblic 1,000 trivia questions on your favorite subject! (#628)

Biorhythm Monthly Schedule Charts your physical, emotional & intellectual cycles. (#619)

Bouncing Babies Don't let the babies bow! Also, Brock, Backgammon & more! (#650)

Bowling League Secretary Everything you need to run a league! (#23)

Bridge Great Bridge Computer plays 3 hand! Good for beginner & pro! (#793)

Cambridge Thoughtful Handicapper This horse can do! Also picks best choice in dog races! (#616)

Conquest Test and graphics adventure with monsters and gold aplenty. (#451) *

Composer By Oak Tree Software See & play music by the note. (#704)

Computer Creating Card Create and save your own custom cards & birthday musical greeting cards on disk! (#625)

Crossword Creator Automatically creates a crossword puzzle from words and clues you choose! (#618)

Eamon: The Hall & The Ice Caves Find 2 disks in this test adventure series. Good treasure hunting! (#636, #697)

The Fly The Old Shell Game. Is your eye faster than the fly? Also, Asteroid and others! (#603)

Funnel & Baskets Kids love this arithmetic game! Solve falling questions before they hit the bucket! (#625)

Get Lucky! Strip poker, strip trivia for adult amusement. (#625)

Golden Wombat of Dexting Test adventure from those folks under Gday! (#781) *

Greatest Arcade Games Donkey Kong, Scramble, Highman, Spoozies & more! (#467) *

Hangman Challenging. Good for slow times at the office! (#713)

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Loto Fever Gives your horseshoe & lucky number! (#658)

Melting Fast moving, dynamic game. (#641) *

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Pellick's Best Games Arcade panic! 7 games: Pacman, Castle, Blinks, 3 Demons. Special Invaders & more! (#478) *

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ADVENTURE continued

larware. This is a hybrid text and graphics adventure where you try to escape the clutches of aliens in order to save the earth. It has an excellent parser that understands complex statements. The graphics are a little unusual, as they do not exist on disk as predrawn bit-mapped pictures but are loaded from disk as instructions and quickly redrawn on screen. This takes a little getting used to, but it allows a great many different pictures on a single disk.

Also from Polarware is *Talisman* (CGA/HGC, 256K, \$19.95). This two-disk game is another text and graphics hybrid that has as its scenario a battle with an evil genie in ancient Persia. You must seek and find a magical talisman that can be used to defeat the genie. As with *Oo-Topos*, the graphics are redrawn with each scene, but this program's technique is fast and there are over 150 different pictures in the game. *Talisman*'s parser allows complex multiple-sentence commands. Its vocabulary is quite large, supporting about a thousand words.

Next we come to *The President Is Missing!* (CGA/EGA, 256K, \$29.95), a graphic adventure from Cosmi. This is a multimedia adventure game, as it has not only text and graphics but includes a cassette tape that you must listen to in order to play the game. Your role is that of a CIA operative trying to discover the whereabouts of the kidnapped American president. Graphics are heavily used, with digitized images of people and places.

Continuing with graphic adventures, I came to a game that is different both in approach and in scope. *Starflight* (CGA/HGC, 256K, \$49.95) from Electronic Arts is a graphic adventure on a cosmic scale. You have over 270 star systems and 800 planets to explore. Many of them are populated with alien species, with which you must communicate. The gameplay includes space scenes, animation, and strategy. This is an entirely menu-driven game, where you make your choices from a list of available options.

ANIMATION WITH SOUND

Mindscape has created a series of three unique and intriguing graphic adventure games. While there is some text input required, you rely



mostly on the visual images presented on the screen. And unlike other graphic adventures, in these games nearly everything on the screen is an object that can be explored, opened, or used.

Using the keyboard, joystick, or mouse, you merely point to the thing you want and the computer recognizes it as a discrete object, not just a part of the picture. While the graphics are fairly good, these games set themselves apart even more by the inclusion of animation and high-quality digitized sounds. So guns sound like guns, doors creak, and thunder really thunders.

The first of these is *Deja Vu: A Nightmare Comes True* (CGA, 512K, \$39.95). In this game you are a detective who wakes up in a restroom with a terrible hangover, and you not only can't remember how you got there, you don't even know who you are. To make matters worse a murder has been committed, and the police think you did it. It's up to

you to find the answers before the cops get you.

The second game is *Uninvited* (CGA, 512K, \$39.95). This is your classic haunted house story. Your car breaks down, you go to a nearby house for help, and the next thing you know you are up to your neck in ghosts, demons, and things that go bump in the night. The graphics are good, the story is excellent, and the sounds are realistic enough to make the game downright spooky.

Finally, there is *Shadowgate* (CGA, 640K, \$44.95). This is a fantasy story where you are the noble young hero out to rescue your land from the evil clutches of the Warlock Lord. Again there are object-oriented graphics, animation, and digitized sounds, as well as a wide assortment of monsters such as dragons, demons, wraiths, trolls, and wizards.

3-D GRAPHICS

Now come the adventure games that make the most use of the current PC hardware. These are the high-resolution, multicolor, animated, and fully three-dimensional graphic adventures. Because of the high degree of animation, these games could easily be confused with cartoons, yet they are adventure games in every bit of the classical sense. There is a storyline to follow, a plot to unravel, places to explore, puzzles to solve, and a conclusion to reach. But in these games there is as much stimulation for the eyes as there is for the mind.

Sierra On-Line has produced many of these games, improving their techniques with each release. One of the first was *Space Quest: The Sarien Encounter* (CGA/EGA/VGA/MCGA/HGC, 256K, \$49.95), the story of Roger Wilco the starship janitor who unwittingly becomes a hero after his ship is attacked and destroyed by a group of nasty aliens. His job is to find the Star Generator and get it out of the hands of the Sariens. You move your hero with the cursor keys or a joystick. Since this is a three-dimensional game, Roger must walk around objects (in front or behind) and not merely bump into them. The background scenes often contain animated displays that occur while the characters are moving around.

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C-64/128, APPLE II SERIES, IBM PC



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ADVENTURE continued

\$49.95) is a recent sequel to the original *Space Quest*. In this game Roger must save the world from being invaded by legions of cloned insurance salesmen. The graphics are very well done, especially in the EGA or higher modes.

New from Sierra is *Police Quest* (CGA/EGA/VGA/MCGA/HGC, 256K, \$49.95). This is a 3-D graphic simulation of a police officer's job, with the ultimate aim of capturing the arch-criminal called "The Death Angel." You are a street cop who must give out tickets, fight the bad guys, and fill out paperwork. You also have to follow normal police protocol and not just start blasting at suspects. Like other games of this type, it has animation, very colorful high-resolution graphics, a good text parser, and a good story.

Another of my favorite adventures is *King's Quest III: To Heir Is Human* (CGA/EGA/HGC, 256K, \$49.95) from Sierra On-Line. Without doubt the best of the three games in the *King's Quest* series, it features really nice graphics, great music and sounds, automatic mapping of places you have been, and pop-down menus.

The story centers around an evil wizard and you, his young slave. The wizard plans on killing you when you reach a certain age (which will be quite soon). You must learn his magical secrets, find the ingredients needed for the magic potions, and then use them against him. Once freed, an even more difficult task lies ahead: you have to fight a monstrous snow creature and a deadly dragon to rescue a princess.

FOR ADULTS ONLY

For the adult gamer, Sierra On-Line has the funniest game I have seen in a long time. *Leisure Suit Larry in the Land of the Lounge Lizards* (CGA/EGA/VGA/MCGA/HGC, 256K, \$39.95) is a hilarious, rather risqué, 3-D animated graphic adventure. In this one you play Larry, who is somewhat of a jerk and spends his nights looking for the girl of his dreams. Along the way he visits bars, casinos, and nightclubs and meets some wild people of the street, including thugs, winos, taxi drivers, and the kind of girls Mom warned you about. This game is definitely not for children or those easily offended, but for those



Police Quest



who can tolerate a little sleaze, it is great fun.

MOUSE-DRIVEN ADVENTURES

From the software division of Lucasfilm comes another type of animated graphic adventure game, the mouse-driven adventure game. These games have many of the aspects of other 3-D games, but all the commands needed to control the character are on your screen. If you want a character to walk to the door, just point at the door and click a button. To pick up something, point to the words "Pick up" and then click on the object you want.

The animated characters will walk around obstacles to get where you want them to go. Sound and music are used throughout these games. One of the foremost of this type is *Maniac Mansion* (CGA/EGA/VGA/MCGA/HGC, 256K, \$44.95) by Lucasfilm Games. The story begins with a weird asteroid striking the earth near Dr. Fred's house. Twenty years

go by and a lot of strange things are going on in the house. Your girlfriend Sandy has been kidnapped by Dr. Fred, who really likes her brains. You and two companions that you choose must enter the house, explore it, find Sandy, and free her from the clutches of the diabolical Dr. Fred, Nurse Edna, and Weird Ed.

A newer release from Lucasfilm Games is *Zak McKracken and the Alien Mindbenders* (CGA/EGA/VGA/MCGA/HGC, 256K, \$44.95). In this game yet another group of aliens is hatching a world domination plot. As Zak McKracken you must uncover the details and, with only a few special tools like a stale loaf of bread, defeat the evil alien forces. As in *Maniac Mansion*, to control the character you need only point to the action you want, then point at the object to perform the action on. The graphics in this game are excellent, it has great sound, and the story has quite a bit of humor.

So there you have it. From the early days to the latest technology frontier, adventure games remain a staple of computer entertainment. Obviously this is only a sample of the available games, but it does give you a good idea of what types of adventures you can expect to find. In future issues *PCGames* will look at select groups of these games in more detail. Until then, happy adventuring.

—Lou Wallace

Lou Wallace is the technical manager of *RUN* magazine and a contributing editor for *AmigaWorld* magazine. He has been playing games for over ten years.



The Midway section of the next *PCGames* will look at games that deal with golf, helicopters, Star Trek, martial arts, TV games, finance, and travel.

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the big top

Due to space limitations, the entertainment software in this buyer's guide is listed under the categories discussed in the Midway section: **Arcade, Sports, Vehicles, Fantasy, Strategy, and Adventure**. Other types of games are listed under **Miscellaneous**.

PCGames will further define subcategories of software in upcoming articles. Because of the explosive nature of the entertainment software market, no buyer's guide is ever complete at press time. However, we have made every effort to make this the most complete and comprehensive collection of entertainment software possible.

COMPANY: (EA) = distributed by Electronic Arts

MEMORY: RAM needed to run program

GRAPHICS MODE: graphics standard the program will use.

T = text only, H = Hercules graphics card, C = CGA (Color Graphics Adapter), E = EGA (Enhanced Graphics Adapter),

MC = MCGA (Multicolor Graphics Array), V = VGA (Video Graphics Array)

HARDWARE: J = joystick, HD = hard disk, M = mouse, x = no special requirements. All games can be played directly from the keyboard, except where noted with *. Devices with * are required.

DISK SIZE: AV = available at extra cost

ARCADE

TITLE	COMPANY	MEMORY	GRAPHICS MODE	HARDWARE	DISK SIZE	PRICE
ALF	Box Office	256K	C/E	x	5 1/4 or 3 1/2	\$14.99
Arctic Antics: Spy vs. Spy III	Epyx	128K	C	x	5 1/4	\$19.95
Autoduel	Origin Systems	256K	H/C/E	x	5 1/4 or 3 1/2	\$39.95
Bad Street Brawler	Mindscape	256K	C/E	J	5 1/4	\$29.95
Beyond Castle Wolfenstein	Muse	128K	C	J	5 1/4	\$15.95
Bionic Commando	Capcom U.S.A.	256K	H/C/E	J	5 1/4	\$34.95
Blockbuster	Mindscape	256K	C	J, M	5 1/4	\$34.95
Bop'n Wrestle	Mindscape	128K	C	J	5 1/4 or 3 1/2	\$29.95
Boulder Dash Construction Kit	Epyx	128K	C	x	5 1/4	\$24.95
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Dig Dug	Thunder Mountain	128K	C	J	5 1/4	\$9.95
Drag Race Eliminator	Family Software	128K	C	J	5 1/4	\$34.95
Feud	Mastertronic	256K	C/E	x	5 1/4; 3 1/2 AV	\$9.99
Fire and Forget	Titus	256K	H/C	J	5 1/4; 3 1/2 AV	\$39.95
Galaxien	Thunder Mountain	256K	C	J	5 1/4	\$9.95
Gauntlet	Mindscape	256K	C/E	J	5 1/4	\$39.95
Ikari Warriors	Data East	256K	C/E	J*	5 1/4 and 3 1/2	\$39.95
Impossible Mission II	Epyx	256K	C	x	5 1/4	\$39.95
Into the Eagle's Nest	Mindscape	256K	C/E	J	5 1/4 or 3 1/2	\$34.95
Jr. Pac-Man	Thunder Mountain	256K	C	J	5 1/4	\$9.95
Karateka	Broderbund	128K	H/C	J	5 1/4 or 3 1/2	\$14.95
Karnov	Data East	512K	H/C/E	J*	5 1/4	\$39.95
Last Ninja, The	Activision	512K	C/E	J	5 1/4 and 3 1/2	\$42.95
Lock-On	Data East	256K	H/C/E	J	5 1/4	\$39.95
Lode Runner	Broderbund	128K	H/C	J	5 1/4 or 3 1/2	\$14.95
Marble Madness	Electronic Arts	256K	C	J	5 1/4 or 3 1/2	\$34.95
Master Ninja: Shadow Warrior of Death	Paragon Software (EA)	256K	C	x	5 1/4	\$34.95
Matterhorn Screamer	Hi Tech Expressions	256K	C	J	5 1/4	\$9.95
MiniGolf	Artworx	512K	H/C	x	5 1/4 and 3 1/2	\$19.95
Mini-Putt	Accolade	256K	H/C/E	J	5 1/4 and 3 1/2	\$39.95
Ms. Pac-Man	Thunder Mountain	128K	C/E	J	5 1/4	\$9.95
Night Mission Pinball	subLogic	64K	C/E/MC/V	J	5 1/4 and 3 1/2	\$39.95
Ninja	Mastertronic	256K	C/E	J	5 1/4; 3 1/2 AV	\$9.99
Off Shore Warrior	Titus	256K	H/C/E	J	5 1/4; 3 1/2 AV	\$39.95

ARCADE continued

TITLE	COMPANY	MEMORY	GRAPHICS MODE	HARDWARE	DISK SIZE	PRICE
Pac-Man	Thunder Mountain	128K	C/E	J	5 1/4	\$9.95
Paperboy	Mindscape	256K	C/E	J	5 1/4	\$39.95
PC Tree	Family Software	128K	C	J	5 1/4	\$39.95
Pinball Construction Set	Electronic Arts	128K	C	J	5 1/4	\$14.95
Pinball Wizard	Accolade	256K	H/C/E	x	5 1/4 and 3 1/2	\$34.95
Pirates!	MicroProse	256K	C/E	J	5 1/4	\$39.95
Pole Position	Thunder Mountain	256K	C	J	5 1/4	\$9.95
Quik	Thunder Mountain	128K	C	J*	5 1/4	\$9.95
Rad Warrior	Epyx	128K	C	x	5 1/4	\$19.95
Rampage	Activision	612K	C/E	J	5 1/4 and 3 1/2	\$37.95
Rocket Ranger	Cinemaware	256K	H/C/E	J	5 1/4 and 3 1/2	\$49.95
Rockford	Arcadia	256K	C/E	J	5 1/4	\$39.99
Rush 'N Attack	Konami	384K	C/E	J	5 1/4	\$34.95
Shanghai	Activision	256K	C	J	5 1/4 and 3 1/2	\$37.95
Shultz's Treasure	ComputerEasy	128K	C	J	5 1/4	\$9.95
Skyfox II: The Cygnus Conflict	Electronic Arts	384K	C/E	x	5 1/4	\$29.95
Sky Runner	Spinnaker	128K	C	x	5 1/4 and 3 1/2	\$19.95
Soko-Ban	Spectrum HoloByte	256K	C	J	5 1/4, 3 1/2, AV	\$29.95
Spiderbot	Epyx	256K	C	x	5 1/4	\$19.95
Starblazer	Rainbird	256K	C	J, M	5 1/4 and 3 1/2	\$29.95
StarQuake	ShareData	256K	C	x	5 1/4	\$9.99
Super Pac-Man	Thunder Mountain	256K	C/E	J	5 1/4	\$14.95
Tag Team Wrestling	Data East	256K	C	J	5 1/4	\$14.95
Tau Ceti	Thunder Mountain	256K	C	J	5 1/4	\$14.95
Tetris	Spectrum HoloByte	256K	H/C/E	J	5 1/4, 3 1/2, AV	\$34.95
Thexder	Sierra On-Line	256K	C	x	5 1/4 and 3 1/2	\$34.95
Three Stooges, The	Cinemaware	256K	C/E	J	5 1/4 and 3 1/2	\$49.95
Trojan	Capcom U.S.A.	256K	H/C/E	x	5 1/4	\$34.95
Uridium	Mindscape	384K	C/E	J	5 1/4	\$29.95
Victory Road	Data East	256K	H/C/E	J*	5 1/4 and 3 1/2	\$39.95
Willow	Mindscape (Lucasfilms)	512K	C/E	J, M	5 1/4	\$39.95
Wizard	Ocean Software (Mindscape)	256K	C	J	5 1/4	\$14.95
Zany Golf	Electronic Arts	256K	H/C/E	M	5 1/4	\$39.95

SPORTS

TITLE	COMPANY	MEMORY	GRAPHICS MODE	HARDWARE	DISK SIZE	PRICE
APBA Major League Players Baseball Master Edition	Random House	128K	H/C	x	5 1/4	\$59.95
APBA Major League Players Baseball Old Timers Volume 3	Random House	128K	H/C	x	5 1/4	\$19.95
Basketball Challenge	XOR Corporation	320K	H/C	x	5 1/4	\$39.95
Basketball: The Pro Game	Lance Haffner	256K	T	x	5 1/4	\$39.99
California Games	Epyx	512K	C/E	x	5 1/4	\$39.95
Championship Baseball	Infocom (Solid Gold)	256K	C	J	5 1/4 and 3 1/2	\$14.95
Championship Boxing	Sierra On-Line	128K	C	x	5 1/4	\$34.95
Championship Golf: Pebble Beach	Infocom (Solid Gold)	128K	H/C	x	5 1/4 and 3 1/2	\$14.95
Computer Baseball	Strategic Simulations	128K	H/C	x	5 1/4	\$14.95
Downhill Challenge	Broderbund	256K	H/C	J	5 1/4 or 3 1/2	\$29.95
Dream Team Fantasy Football	M&I Software	256K	T	x	5 1/4	\$14.99
Earl Weaver Baseball	Electronic Arts	256K	C/E	J, M	5 1/4	\$49.95
Earl Weaver Baseball Commissioner's Disk	Electronic Arts	256K	C/E	J, M	5 1/4	\$19.95
Final Assault	Epyx	256K	H/C	J, M	5 1/4 or 3 1/2	\$39.95
Final Four College Basketball	Lance Haffner	256K	T	x	5 1/4	\$39.99
Football	Software Simulations	256K	C	x	5 1/4	\$29.95
4th & Inches	Accolade	256K	H/C/E	x	5 1/4 and 3 1/2	\$39.95
4th & Inches Team Construction Disk	Accolade	256K	H/C/E	x	5 1/4 and 3 1/2	\$19.95
Full Count Baseball	Lance Haffner	384K	T	x	5 1/4	\$39.99
Games: Summer Edition, The	Epyx	512K	H/C/MC/V	J	5 1/4 or 3 1/2	\$49.95
Games: Winter Edition, The	Epyx	512K	H/C/MC/V	x	5 1/4	\$49.95

the big top

SPORTS continued

TITLE	COMPANY	MEMORY	GRAPHICS MODE	HARDWARE	DISK SIZE	PRICE
GBA Championship Basketball Two-on-Two	Infocom (Solid Gold)	256K	C	J	5 1/4 and 3 1/2	\$14.95
GFL Championship Football	Gamestar	256K	C	x	5 1/4 and 3 1/2	\$42.95
HardBall	Accolade	256K	H/C/E	x	5 1/4 and 3 1/2	\$14.95
Hat Trick	Capcom U.S.A.	256K	C	x	5 1/4	\$34.95
Indoor Sports	Mindscape	256K	C/E	J	5 1/4 or 3 1/2	\$29.95
International Hockey	Artworx	512K	C/E	J	5 1/4 and 3 1/2	\$19.95
John Elway's Quarterback	Melbourne House	256K	H/C/E/MC	J	5 1/4 or 3 1/2	\$29.99
Jordan vs. Bird: One on One	Electronic Arts	284K	H/C/E/V	J	5 1/4 or 3 1/2	\$39.95
Mean 18	Accolade	256K	H/C/E	x	5 1/4 and 3 1/2	\$44.95
Mean 18 Course Disks	Accolade	256K	H/C/E	x	5 1/4 and 3 1/2	\$19.95
Micro League Baseball	Micro League Sports Association	128K	C	x	5 1/4	\$39.95
MISL Soccer	Mindscape	256K	C	J	5 1/4	\$39.95
NBA	Avalon Hill	128K	C	x	5 1/4, 3 1/2, AV	\$39.95
NFL Challenge	XOR Corporation	320K	H/C	x	5 1/4	\$99.95
Pete Rose Pensant Fever	Gamestar	512K	C/E	J	5 1/4 and 3 1/2	\$39.95
Pro Challenge	XOR Corporation	320K	H/C	x	5 1/4	\$49.95
Pro Manager	Avalon Hill	128K	H/C	x	5 1/4	\$35.00
Pure-Stat Baseball	Software Simulations	256K	C/E	J	5 1/4	\$39.95
Pure-Stat College Basketball	Software Simulations	256K	H/C	x	5 1/4	\$39.95
Skate or Die	Electronic Arts	256K	C/E	J	5 1/4 or 3 1/2	\$34.95
Sporting News Baseball, The	Epyx	256K	C	x	5 1/4	\$39.95
Star Rank Boxing II	Gamestar	256K	C	J	5 1/4 and 3 1/2	\$37.95
Street Football	Capcom U.S.A.	256K	H/C/E	J	5 1/4	\$34.95
Street Sports Baseball	Epyx	256K	C	x	5 1/4	\$19.95
Street Sports Basketball	Epyx	256K	H/C	x	5 1/4	\$19.95
Street Sports Soccer	Epyx	256K	H/C	x	5 1/4	\$19.95
Summer Games II	Epyx	128K	C	x	5 1/4	\$19.95
Super Sunday	Avalon Hill	128K	C	x	5 1/4, 3 1/2, AV	\$35.00
Superstar Ice Hockey	Mindscape	256K	C/E	J	5 1/4 or 3 1/2	\$39.95
Superstar Soccer	Mindscape	256K	C/E	J	5 1/4	\$39.95
10th Frame	Access	256K	C	J	5 1/4	\$44.95
3 in 1 Football	Lance Haffner	256K	T	x	5 1/4	\$39.99
TV Sports: Football	Cinemaware	256K	H/C/E	x	5 1/4 and 3 1/2	\$49.95
Winter Games	Epyx	128K	C	x	5 1/4	\$19.95
World Class Leader Board	Access	256K	H/C/E/V	J	5 1/4, 3 1/2, AV	\$44.95
World Games	Epyx	128K	C	x	5 1/4	\$19.95
World's Greatest Baseball Game, The	Epyx	128K	C	x	5 1/4	\$19.95
World Tour Golf	Electronic Arts	256K	H/C	x	5 1/4 or 3 1/2	\$49.95

VEHICLES

TITLE	COMPANY	MEMORY	GRAPHICS MODE	HARDWARE	DISK SIZE	PRICE
A.C.E.	Spinnaker	256K	C	x	5 1/4 and 3 1/2	\$19.95
A.C.E. II	Spinnaker	256K	C	x	5 1/4 and 3 1/2	\$29.95
Ace of Aces	Accolade	256K	H/C/E	x	5 1/4 and 3 1/2	\$14.95
Arcticfox	Electronic Arts	512K	C/E/V	J	5 1/4 or 3 1/2	\$29.95
B-1 Nuclear Bomber	Avalon Hill	128K	H/C	x	5 1/4	\$21.00
B-24	Strategic Simulations	384K	C	x	5 1/4	\$34.95
Chuck Yeager's Advanced Flight Trainer	Electronic Arts	256K	H/C/E	x	5 1/4	\$39.95
Deep Space: Operation Copernicus	Sir-Tech	256K	C/E	x	5 1/4 and 3 1/2	\$34.95
Destroyer	Epyx	256K	C	x	5 1/4	\$39.95
Dive Bomber	Epyx	320K	C/E	J	5 1/4 or 3 1/2	\$39.95
Dolphin Boating Simulator	Dolphin Marine	512K	H/C/E	x	5 1/4, 3 1/2, AV	\$44.95
Dolphin Sailing Instructor	Dolphin Marine	512K	H/C/E	x	5 1/4, 3 1/2, AV	\$289.60
Dolphin Sailing Simulator	Dolphin Marine	512K	H/C/E	x	5 1/4, 3 1/2, AV	\$44.95
Dolphin Voyage Scenery Disks	Dolphin Marine	512K	H/C/E	x	5 1/4, 3 1/2, AV	\$24.95
F-15 Strike Eagle	MicroProse	128K	C/E	J	5 1/4	\$34.95
F-19 Stealth Fighter	MicroProse	128K	H/C/E/MC/V	J	5 1/4	\$69.95
Falcon	Spectrum HoloByte	256K	H/C/E	J	5 1/4 or 3 1/2	\$44.95
Falcon A.T.	Spectrum HoloByte	512K	E/V	J	5 1/4 and 3 1/2	\$59.95

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Set a blistering batting order and pitching rotation. Bring in relievers, pinch-hitters and pinch-runners. Call for the steal or hit-and-run.



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the big top

VEHICLES continued

TITLE	COMPANY	MEMORY	GRAPHICS MODE	HARDWARE	DISK SIZE	PRICE
4 x 4 Off Road Racing	Epyx	256K	C	x	5 1/4	\$39.95
Gato	Spectrum HoloByte	128K	C	x	5 1/4 3 1/2 AV	\$14.95
Gunship	MicroProse	256K	H/C/E	J	5 1/4	\$49.95
Harrier Combat Simulator	Mindscape	512K	C/E	J	5 1/4 and 3 1/2	\$34.95
Helicat Ace	MicroProse	128K	C	J	5 1/4	\$34.95
Hunt for Red October, The	Datasoft (EA)	512K	H/C/E	J*, M*	5 1/4	\$49.95
Infiltrator	Mindscape	128K	C	J	5 1/4 or 3 1/2	\$29.95
Infiltrator II	Mindscape	128K	C	J	5 1/4 or 3 1/2	\$34.95
Jet	subLogic	256K	H/C/E	J	5 1/4	\$49.95
Jet Scenery Disks	subLogic	256K	H/C/E	x	5 1/4	\$19.95
Microsoft Flight Simulator	Microsoft	256K	H/C/E/V	J, M	5 1/4 or 3 1/2	\$49.95
Orbiter	Spectrum HoloByte	256K	C	M	5 1/4 3 1/2 AV	\$49.95
PHM Pegasus	Lucasfilm Games (EA)	256K	H/C/E	x	5 1/4	\$44.95
Prowler	Mestertronic	256K	C/E	x	5 1/4 3 1/2 AV	\$9.99
PT-109	Spectrum HoloByte	512K	E/V	M	1.2M 8 5 1/4 or two 3 1/2	\$39.95
Search and Destroy	Broderbund	256K	C/E	J	5 1/4	\$14.95
Silent Service	MicroProse	128K	C/E	J	5 1/4	\$34.95
Solo Flight	MicroProse	128K	C	J	5 1/4	\$34.95
Splitfire Ace	MicroProse	128K	C	J	5 1/4	\$34.95
Sub Battle Simulator	Epyx	256K	H/C/E	x	5 1/4	\$39.95
Super Huey II	Cosmi	256K	C/E	x	5 1/4	\$24.95
Superbike Challenge	Broderbund	256K	C	J	5 1/4 or 3 1/2	\$19.95
Test Drive	Accolade	256K	H/C/E	J	5 1/4 and 3 1/2	\$39.95
3-D Helicopter Simulator	Sierra On-Line	256K	C/E	J	5 1/4 end 3 1/2	\$49.95
Tomahawk	Datasoft (EA)	512K	H/C	J	5 1/4 and 3 1/2	\$39.95
Top Gun	Thunder Mountain	128K	C	J	5 1/4	\$9.95
Train, The	Accolade	256K	H/C/E	J	5 1/4 and 3 1/2	\$39.95
Up Periscope	ActionSoft	256K	H/C/E	J	5 1/4 3 1/2 AV	\$29.95

FANTASY

TITLE	COMPANY	MEMORY	GRAPHICS MODE	HARDWARE	DISK SIZE	PRICE
Allen Fires - 2199 A.D.	Peragon Software (EA)	512K	C/E	M	5 1/4	\$44.95
Alternate Reality: The City	Datasoft (EA)	512K	C/E	x	5 1/4	\$39.95
Bard's Tale, The	Interplay (EA)	256K	C/E	x	5 1/4	\$39.95
Dungeon Masters Assistant	Strategic Simulations	256K	H/C/E/M/C/V	x	5 1/4	\$29.95
Dungeons & Dragons: Heroes of the Lance	Strategic Simulations	256K	C/E	x	5 1/4 or 3 1/2	\$39.95
Dungeons & Dragons: Pool of Radiance	Strategic Simulations	256K	C/E	x	5 1/4 or 3 1/2	\$49.95
Fellowship of the Ring, The	Addison-Wesley	128K	C	x	5 1/4	\$39.95
Hobbit, The	Addison-Wesley	128K	C	x	5 1/4	\$34.95
Might and Magic, Book 1: Secret of the Inner Sanctum	Activision	256K	C/E	x	5 1/4 and 3 1/2	\$49.95
Moebius	Origin Systems	256K	H/C/E	x	5 1/4	\$49.95
Phantasie	Strategic Simulations	256K	C	x	5 1/4	\$39.95
Phantasie III: The Wrath of Nikademus	Strategic Simulations	256K	C	x	5 1/4	\$39.95
Queston II	Strategic Simulations	256K	C/E	x	3 1/2	\$44.95
Rings of Ziffin	Strategic Simulations	256K	C	x	5 1/4	\$39.95
Sentinel Worlds I: Future Magic	Electronic Arts	256K	C/E	x	5 1/4 or 3 1/2	\$49.95
Shadows of Mordor, The	Addison-Wesley	128K	C	x	5 1/4	\$39.95
Shard of Spring	Strategic Simulations	384K	C	x	5 1/4	\$39.95
Star Command	Strategic Simulations	256K	C/E	x	3 1/2	\$49.95
Star Saga One: Beyond the Boundary	MasterPlay	256K	H/C/E	x	5 1/4 and 3 1/2	\$79.95
2400 A.D.	Origin Systems	256K	H/C/E	x	5 1/4	\$29.95
Ultima I	Origin Systems	256K	C/E	x	5 1/4	\$39.95
Ultima III: Exodus	Origin Systems	128K	C	x	5 1/4	\$39.95
Ultima IV: Quest of the Avatar	Origin Systems	256K	C	x	5 1/4 or 3 1/2	\$59.95
Ultima V: Warriors of Destiny	Origin Systems	256K	H/C/E	x	5 1/4 or 3 1/2	\$59.95
Wizard Wars	Paragon Software (EA)	256K	C/E	x	5 1/4 and 3 1/2	\$44.95
Wizardry I: The Proving Grounds	Sir-Tech	128K	C	x	5 1/4 and 3 1/2	\$59.95
Wizardry II: The Knight of Diamonds	Sir-Tech	128K	C/E	x	5 1/4 and 3 1/2	\$49.95

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- IBM PC or compatible
- IBM PS/2
- C64/128



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the big top

FANTASY continued

TITLE	COMPANY	MEMORY	GRAPHICS MODE	HARDWARE	DISK SIZE	PRICE
Wizardry III: The Legacy of Lyngamyn	Sir-Tech	126K	C/E	x	5¼ and 3½	\$49.95
Wizardry IV: The Return of Werdna	Sir-Tech	126K	C/E	x	5¼, 3½, AV	\$59.95
Wizard's Crown	Strategic Simulations	256K	C	x	5¼	\$39.95

STRATEGY

TITLE	COMPANY	MEMORY	GRAPHICS MODE	HARDWARE	DISK SIZE	PRICE
American Investor, The	Blue Chip	512K	H/C	x	5¼	\$149.95
Ancient Art of War, The	Broderbund	126K	H/C	J	5¼ and 3½	\$44.95
Ancient Art of War at Sea, The	Broderbund	256K	H/C	J	5¼ and 3½	\$44.95
Apollo 18: Mission to the Moon	Accolade	256K	H/C/E	x	5¼ and 3½	\$39.95
Balance of Power	Mindscape	512K	C/E	x	5¼ or 3½	\$49.95
Baron	Blue Chip	126K	C	x	5¼	\$49.95
Battle of Artletam	Strategic Simulations	126K	C	x	5¼	\$49.95
Battles of Napoleon	Strategic Simulations	256K	C/E	x	5¼	\$49.95
Blissmark: The North Sea Chase, The	Datasoft (EA)	512K	C/E	J, M	5¼	\$39.95
Breach	Onnitrend	320K	C	M	5¼	\$39.95
By Fire & Sword	Avalon Hill	128K	C	x	5¼	\$25.00
Chemobyl	Quantum Concepts	256K	H/C	x	5¼	\$19.95
Chessmaster 2000, The	Software Toolworks	256K	H/C	x	5¼ and 3½	\$44.95
Civil War 1861-1865, The	Avalon Hill	126K	C	x	5¼, 3½, AV	\$35.00
Corporate Raider: The Pirates of Wall St.	Cosmi	256K	H/C/E	x	5¼ or 3½	\$24.95
Dam Busters	Accolade	256K	H/C/E	x	5¼ and 3½	\$14.95
DefCon 5	Cosmi	256K	C/E	x	5¼ or 3½	\$24.95
Diplomacy	Avalon Hill	256K	C	x	5¼, 3½, AV	\$50.00
Elite	Rainbird	512K	C	J, M	5¼ and 3½	\$29.95
Empire	Interstel (EA)	512K	C/E	M	5¼	\$49.95
50 Mission Crush	Strategic Simulations	126K	C	x	5¼	\$14.95
Gettysburg: The Turning Point	Strategic Simulations	256K	C	x	5¼	\$59.95
Global Commander	Datasoft (EA)	512K	C/E	J, M	5¼	\$39.95
Gulf Strike	Avalon Hill	128K	C	x	5¼	\$30.00
Harpoon	Three-Sixty Pacific	512K	H/C/E	M	5¼, 3½, AV	\$39.95
High Seas	Garde	256K	C	x	5¼	\$34.95
Incanubula	Avalon Hill	126K	C	x	5¼	\$30.00
Inside Trader	Cosmi	256K	H/C/E	x	5¼ or 3½	\$24.95
Jury Trial II	Navic	64K	T	x	5¼	\$49.00
Kampfgruppe	Strategic Simulations	256K	C	x	5¼	\$59.95
King of Chicago, The	Cinemaware	384K	C	J, HD	5¼	\$39.95
Knights of the Desert	Strategic Simulations	126K	H/C	x	5¼	\$19.95
L.A. Crackdown	Epyx	256K	C	x	5¼	\$39.95
Lords of Conquest	Electronic Arts	256K	C	x	5¼	\$14.95
Lords of the Rising Sun	Cinemaware	256K	H/C/E	x	5¼ and 3½	\$49.95
Mech Brigade	Strategic Simulations	256K	C	x	5¼	\$59.95
Milky Way Merchant	Davell Custom	128K	H/C	x	5¼	\$35.00
Millionaire II	Blue Chip	256K	H/C	x	5¼	\$49.95
Money Bags: Beat the Gnome of Zurich	Cosmi	256K	H/C/E	x	5¼	\$14.95
Napoleon in Russia	Datasoft (EA)	512K	C/E	J, M	5¼	\$34.95
Nobunaga's Ambition	Koei	256K	C/E	x	5¼	\$59.95
Ogre	Origin Systems	128K	H/C	J, M	5¼	\$29.95
Oligopoly	XOR Corporation	384K	C	HD or 2 drives	5¼	\$49.95
Patton vs. Rommel	Electronic Arts	256K	C	J, M	5¼	\$39.95
Power at Sea	Accolade	256K	H/C/E	J	5¼ and 3½	\$39.95
President Elect	Strategic Simulations	256K	C	x	5¼	\$24.95
Prime Time	First Row	512K	C	x	5¼	\$39.95
Project: Space Station	Accolade	256K	H/C/E	x	5¼ and 3½	\$14.95
PSI 5 Trading Co.	Accolade	256K	H/C/E	x	5¼ and 3½	\$14.95
Ram	Avalon Hill	126K	C	x	5¼	\$30.00
Reach for the Stars: The Conquest of the Galaxy, Third Edition	Strategic Studies Group (EA)	256K	H/C/MC/V	x	5¼ and 3½	\$44.95
Rebel Charge at Chickamauga	Strategic Simulations	256K	C	x	5¼	\$49.95
Roadwar 2000	Strategic Simulations	256K	C	x	5¼	\$39.95

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STRATEGY continued

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Roadwar Europa	Strategic Simulations	256K	C	x	5 1/4	\$39.95
Romance of the Three Kingdoms	Koel	256K	C/E	x	5 1/4	\$69.95
Shloh: Grant's Trial in the West	Strategic Simulations	256K	C/E	x	5 1/4	\$39.95
Sons of Liberty	Strategic Simulations	256K	C/E	x	5 1/4	\$39.95
Space M + A + X	Final Frontier	192K	H/C/E	J	5 1/4, 3 1/2 AV	\$59.95
Star Fleet I: The War Begins	Interstel (EA)	128K	H/C	x	5 1/4, 3 1/2 AV	\$49.95
Star Fleet II: Krellan Commander	Interstel (EA)	512K	C	x	5 1/4, 3 1/2 AV	\$60.00
Stellar Crusade	Strategic Simulations	256K	H/C/E/MC/V	x	5 1/4	\$49.95
Thud Ridge	Three-Sixty Pacific	512K	H/C/E	J	5 1/4, 3 1/2 AV	\$39.95
Tycoon	Blue Chip	128K	C	x	5 1/4	\$49.95
Under Fire	Avalon Hill	256K	C	x	5 1/4, 3 1/2 AV	\$34.95
Universal Military Simulator	Rainbird	512K	C/E	x	5 1/4 and 3 1/2	\$49.95
Volcanoes	Earthware	256K	C	x	5 1/4	\$59.95
Wall Street Raider	Intracorp	256K	H/C	x	5 1/4	\$34.95
Wargame Construction Set	Strategic Simulations	256K	C/E	x	5 1/4	\$39.95
Warship	Strategic Simulations	256K	C	x	5 1/4	\$59.95
Wizard of Wall Street	Broderbund	128K	H/C	x	5 1/4	\$14.95
Wooden Ships & Iron Man	Avalon Hill	128K	C	x	5 1/4	\$35.00

ADVENTURE

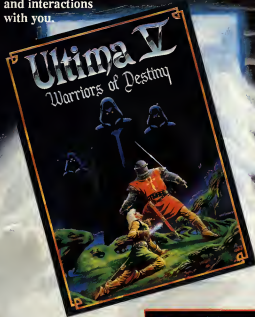
TITLE	COMPANY	MEMORY	GRAPHICS MODE	HARDWARE	DISK SIZE	PRICE
Adventure Construction Set	Electronic Arts	256K	C	x	5 1/4	\$14.95
Ballyhoo	Infocom	48K	T	x	5 1/4	\$14.95
Below the Root	Splnmaker	128K	C	x	5 1/4	\$14.95
Beyond Zork	Infocom	192K	T	x	5 1/4 and 3 1/2	\$52.95
Black Cauldron, The	Sierra On-Line	256K	C	x	5 1/4 and 3 1/2	\$39.95
Bordar Zone	Infocom	192K	T	x	5 1/4 and 3 1/2	\$42.95
Conflict in Vietnam	MicroProse	128K	C	J	5 1/4	\$39.95
Crimson Crown, The	Polarware	256K	H/C	x	5 1/4	\$19.95
Crusade in Europe	MicroProse	128K	C	J	5 1/4	\$39.95
Cutthroats	Infocom	48K	T	x	5 1/4	\$14.95
Decision in the Desert	MicroProse	128K	C	J	5 1/4	\$39.95
Deja Vu: A Nightmare Comes True	Mindscape	512K	C	J, M	5 1/4	\$39.95
Demon's Forge	Mastartronic	128K	C/E	x	5 1/4, 3 1/2 AV	\$9.99
Dr. Dumont's Wild P.A.R.T.I.	First Row	128K	T	x	5 1/4	\$39.95
Enchanter	Infocom	64K	T	x	5 1/4	\$14.95
Enchanter Trilogy	Infocom	64K	T	x	5 1/4	\$44.95
Felony	Thunder Mountain	128K	H/C	x	5 1/4	\$9.95
First Expedition	Interstel (EA)	320K	C	x	5 1/4 and 3 1/2	\$49.95
Footblitzky	Infocom	128K	C	x	5 1/4	\$9.95
Gamma Force in Pit of a Thousand Screams	Infocom	256K	C	x	5 1/4	\$12.00
Gold Rush	Sierra On-Line	256K	C/E/MC/V	J	5 1/4 and 3 1/2	\$49.95
Great Escape, The	Thunder Mountain	128K	C	J*	5 1/4	\$9.95
Guardians of Infinity: To Save Kennedy	Paragon Software (EA)	512K	H/C/E	x	5 1/4	\$44.95
Guild of Thieves	Rainbird	640K	C/E	M	5 1/4 and 3 1/2	\$44.95
Hacker	Infocom (Solid Gold)	128K	C	x	5 1/4 and 3 1/2	\$14.95
Hacker II: The Doomsday Papers	Activision	256K	C	x	5 1/4 and 3 1/2	\$14.95
Hitchhiker's Guide to the Galaxy, The	Infocom (Solid Gold)	192K	T	x	5 1/4 and 3 1/2	\$14.95
Hollywood Hijinx	Infocom	48K	T	x	5 1/4	\$14.95
Jinxter, The	Rainbird	640K	C/E	M	5 1/4 and 3 1/2	\$39.95
King's Quest: Quest for the Crown	Sierra On-Line	256K	H/C/E/V	J, M	5 1/4 and 3 1/2	\$49.95
King's Quest II: Romancing the Throne	Sierra On-Line	256K	H/C/E/V	J, M	5 1/4 and 3 1/2	\$49.95
King's Quest III: To Heir is Human	Sierra On-Line	256K	H/C/E	J, M	5 1/4 and 3 1/2	\$49.95
King's Quest IV: The Perils of Rosella	Sierra On-Line	512K	C/E/MC/V	J, M	5 1/4 and 3 1/2	\$49.95
Lane Mastodon vs. the Blubermen	Infocomics	256K	C	x	5 1/4	\$12.00
Leather Goddesses of Phobos	Infocom (Solid Gold)	192K	T	x	5 1/4 and 3 1/2	\$14.95
Leisure Suit Larry in the Land of the Lounge Lizards	Sierra On-Line	256K	H/C/E/MC/V	J	5 1/4 and 3 1/2	\$39.95
Manhunter: New York	Sierra On-Line	256K	C/E/MC/V	J	5 1/4 and 3 1/2	\$49.95
Maniac Mansion	Lucasfilm Games	256K	H/C/E/MC/V	J	5 1/4 and 3 1/2	\$44.95
Master Spy	Great Game Products	128K	H/C	x	5 1/4	\$24.95

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ADVENTURE continued

TITLE	COMPANY	MEMORY	GRAPHICS MODE	HARDWARE	DISK SIZE	PRICE
Metropolis	Arcadia	256K	C/E	x	5 1/4	\$39.99
Mind Forever Voyaging, A	Infocom	128K	T	x	5 1/4	\$14.95
Moonmist	Infocom	48K	T	x	5 1/4	\$39.95
Moses, the Old Testament #1	First Row	256K	C	x	5 1/4	\$29.95
Murder by the Dozen	Thunder Mountain	128K	H/C	x	5 1/4	\$9.95
Murder on the Atlantic	Intracorp	256K	C/E	x	5 1/4	\$34.95
Omicron Conspiracy	Epyx	256K	C	x	5 1/4	\$49.95
Oo-Topos	Polarware	256K	H/C	x	5 1/4	\$19.95
Pawn, The	Rainbird	640K	C/E	M	5 1/4 and 3 1/2	\$44.95
Planetfall	Infocom (Solid Gold)	192K	T	x	5 1/4 and 3 1/2	\$14.95
Plundered Hearts	Infocom	64K	T	x	5 1/4	\$39.95
Police Quest: In Pursuit of the Death Angel	Sierra On-Line	256K	H/C/E/MC/V	J	5 1/4 and 3 1/2	\$49.95
President Is Missing!, The	Cosmi	256K	C/E	x	5 1/4 or 3 1/2	\$29.95
S.D.I.	Cinemaware	256K	H/C/E	J	5 1/4; 3 1/2 AV	\$39.95
Seven Cities of Gold	Electronic Arts	128K	C	J	5 1/4	\$14.95
Seven Spirits of Re, The	Sir-Tech	128K	C/E	x	5 1/4 and 3 1/2	\$49.95
Shadowgate	Mindscape	640K	C	J, M	5 1/4	\$44.95
Sherlock: The Riddle of the Crown Jewels	Infocom	192K	T	x	5 1/4 and 3 1/2	\$42.95
Shogun, James Clavell's	Mastertronic	256K	C/E	J	5 1/4; 3 1/2 AV	\$9.99
Simbad and the Throne of the Falcon	Cinemaware	256K	H/C/E	x	5 1/4 and 3 1/2	\$49.95
Sorcerer	Infocom	64K	T	x	5 1/4	\$44.95
Space Quest: The Sarien Encounter	Sierra On-Line	256K	H/C/E/MC/V	J	5 1/4 and 3 1/2	\$49.95
Space Quest II: Vohaul's Revenge	Sierra On-Line	256K	H/C/E/MC/V	J	5 1/4 and 3 1/2	\$49.95
Spellbreaker	Infocom	64K	T	x	5 1/4	\$49.95
Star Trek: First Contact	Simon & Schuster	256K	T	x	5 1/4; 3 1/2 AV	\$39.95
Star Trek: Kobayashi Alternative	Simon & Schuster	128K	T	x	5 1/4	\$29.95
Star Trek: The Rebel Universe	Simon & Schuster	256K	C/E	J, M	5 1/4 and 3 1/2	\$49.95
Starflight	Electronic Arts	256K	H/C	x	5 1/4	\$49.95
Suspect	Infocom	48K	T	x	5 1/4	\$14.95
Talisman, Challenging the Sands of Time	Polarware	256K	H/C	x	5 1/4	\$19.95
Telegard	Avalon Hill	128K	C	x	5 1/4	\$28.00
Temple of Apshai Trilogy	Epyx	128K	C	x	5 1/4	\$19.95
Transylvania	Polarware	256K	H/C	x	5 1/4	\$19.95
Treasure Island	Spinnaker	128K	C	x	5 1/4	\$14.95
Trilogy	Mastertronic	256K	C/E	x	5 1/4 and 3 1/2	\$14.99
Trinity	Infocom	128K	T	x	5 1/4	\$14.95
Twilight's Ransom	Paragon Software (EA)	256K	H/C	x	5 1/4	\$34.95
221B Baker St.	Datasoft (EA)	256K	C/E	J	5 1/4	\$29.95
Uninvited	Mindscape	512K	C	J, M	5 1/4	\$39.95
Wilderness	Spectrum HoloByte	256K	C	x	5 1/4	\$29.95
Wishbringer	Infocom (Solid Gold)	64K	T	x	5 1/4 and 3 1/2	\$14.95
Witness, The	Infocom	48K	T	x	5 1/4	\$9.95
Wizard of Oz, The	Spinnaker	128K	C	x	5 1/4	\$14.95
Zak McKracken and the Alien Mindbenders	Lucasfilm Games	256K	H/C/E/MC/V	J, M	5 1/4 and 3 1/2	\$44.95
Zork I: The Great Underground Empire	Infocom (Solid Gold)	192K	T	x	5 1/4 and 3 1/2	\$39.95
Zork II: The Wizard of Frobozz	Infocom	64K	T	x	5 1/4	\$44.95
Zork III: The Dungeon Master	Infocom	64K	T	x	5 1/4	\$44.95
Zork Trilogy	Infocom	64K	T	x	5 1/4 and 3 1/2	\$52.95
ZorkQuest: Assault on Egreth Castle	Infocomics	256K	C	x	5 1/4	\$12.00

MISCELLANEOUS

TITLE	COMPANY	MEMORY	GRAPHICS MODE	HARDWARE	DISK SIZE	PRICE
Atlantic City Blackjack and Craps	Great Game Products	64K	H/C	x	5 1/4	\$29.95
Beating the House at Blackjack	Applications Plus	128K	C/E	x	5 1/4	\$34.95
Bermuda Square	XOR Corporation	256K	C	x	5 1/4	\$29.95
Blackjack Academy	MicroIllusions	256K	C/E	x	5 1/4 and 3 1/2	\$42.95
Bridge 5.0	Artworx	512K	C	x	5 1/4 or 3 1/2	\$29.95
Card Sharks	ShareData	256K	H/C	x	5 1/4; 3 1/2 AV	\$12.99
Casino Betting Systems	Manhattan	64K	H/C	x	5 1/4	\$35.00
Casino Blackjack Counter/Tutor	Manhattan	64K	H/C	x	5 1/4	\$35.00

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TITLE	COMPANY	MEMORY	GRAPHICS MODE	HARDWARE	DISK SIZE	PRICE
Casino Craps	Manhattan	64K	H/C	x	5 1/4	\$35.00
Championship Poker	Applications Plus	128K	C/E	x	5 1/4, 3 1/2, AV	\$34.95
Checkers	ComputerEasy	256K	H/C	x	5 1/4	\$9.95
Classic Concentration	ShareData	256K	H/C	x	5 1/4, 3 1/2, AV	\$12.99
CompuBridge	Artworx	512K	H/C	x	5 1/4 and 3 1/2	\$19.95
Compute Pursuit	Navic	64K	T	x	5 1/4	\$39.00
Conjecture	Robert Scott Enterprises	256K	C	x	5 1/4	\$9.95
Cribbage Master II	Manhattan	64K	H/C	x	5 1/4	\$35.00
Dell Crossword Puzzles, Volume III	ShareData	128K	T	x	5 1/4	\$7.99
Dr. Ruth's Game of Good Sex	Avalon Hill	128K	H/C	x	5 1/4	\$29.95
Family Feud	ShareData	256K	H/C	x	5 1/4, 3 1/2, AV	\$12.99
50 Annotated Chess Classics	Enlightenment	256K	H/C	x	5 1/4, 3 1/2, AV	\$19.95
5 Weeks to Winning Bridge	Great Game Products	256K	H/C	x	5 1/4	\$39.95
Gin Rummy 4.0	Manhattan	64K	H/C	x	5 1/4	\$35.00
Grand Slam Bridge	Electronic Arts	256K	H/C	x	5 1/4 and 3 1/2	\$59.95
Guide to Chess Openings	Enlightenment	128K	H/C/E	x	5 1/4, 3 1/2, AV	\$34.95
High Rollers	Box Office	256K	C/E	x	5 1/4 or 3 1/2	\$14.99
Jeopardy	ShareData	256K	H/C	x	5 1/4, 3 1/2, AV	\$12.99
Jeopardy, Second Edition	ShareData	256K	H/C	x	5 1/4, 3 1/2, AV	\$12.99
King's Indian Defense	Enlightenment	256K	H/C	x	5 1/4, 3 1/2, AV	\$19.95
Laptop Chess	Mindscape	256K	H/C	x	3 1/2	\$39.95
Las Vegas Hold'em	Manhattan	64K	H/C	x	5 1/4	\$35.00
Millionaire	BrainBank	64K	C	x	5 1/4	\$34.95
Mind Games	ComputerEasy	256K	H/C	x	5 1/4	\$9.95
Mythical Poker	Brush College Systems	256K	H/C	x	5 1/4 or 3 1/2	\$25.00
Najdorf Sicilian Defense	Enlightenment	256K	H/C	x	5 1/4, 3 1/2, AV	\$19.95
Nemesis Go Master	Toyogo	400K	H/C/E	x	5 1/4 or 3 1/2	\$79.00
Nemesis Joseki Tutor	Toyogo	400K	H/C/E	x	5 1/4 or 3 1/2	\$49.00
N.Y. Times Crossword Puzzles, Vol. III	ShareData	128K	T	x	5 1/4	\$7.99
Nord and Bart Couldn't Make Head or Tail of It	Infocom	128K	T	x	5 1/4	\$14.95
\$100,000 Pyramid, The	Box Office	256K	C/E	x	5 1/4 or 3 1/2	\$14.99
Pathwords	Thunder Mountain	128K	C	x	5 1/4	\$9.95
Paul Whitehead Teaches Chess	Enlightenment	256K	H/C/E	x	5 1/4, 3 1/2, AV	\$34.95
Play Bridge with Sholmold	Great Game Products	128K	H/C	x	5 1/4	\$29.95
Play Bridge with Truscott	Great Game Products	128K	H/C	x	5 1/4	\$29.95
Purr'sonal Challenge: Big Screen Trivia	Softworks	256K	T	x	5 1/4	\$24.95
Railroad Works, The	Thunder Mountain	128K	H/C	J	5 1/4	\$9.95
Romantic Encounters at the Dome	MicroIllusions	256K	T	x	5 1/4 and 3 1/2	\$44.95
Sargon III	Spinnaker	128K	T	x	5 1/4	\$19.95
Scrabble	Virgin Games (EA)	256K	H/C	x	5 1/4	\$39.95
Seven Card Stud	Manhattan	64K	H/C	x	5 1/4	\$35.00
Softaire Royale	Spectrum HoloByte	256K	C/E	M	5 1/4, 3 1/2, AV	\$34.95
Spy's Adventures in Europe, The	Polarware	256K	H/C	x	5 1/4	\$19.95
Spy's Adventures in North America, The	Polarware	256K	H/C	x	5 1/4	\$19.95
Spy's Adventures in South America, The	Polarware	256K	H/C	x	5 1/4	\$19.95
Strategic Craps	Applications Plus	128K	C/E	x	5 1/4, 3 1/2, AV	\$39.95
Strip Poker II	Artworx	512K	C/E	x	5 1/4 and 3 1/2	\$39.95
TellStar	Spectrum HoloByte	128K	C	x	5 1/4, 3 1/2, AV	\$14.95
Ticket to Hollywood	Blue Lion	128K	H/C/E	J, M	5 1/4, 3 1/2, AV	\$39.95
Ticket to London	Blue Lion	128K	H/C/E	x	5 1/4, 3 1/2, AV	\$39.95
Ticket to Paris	Blue Lion	128K	H/C/E	x	5 1/4, 3 1/2, AV	\$39.95
Ticket to Spain	Blue Lion	128K	H/C/E	J	5 1/4, 3 1/2, AV	\$39.95
Ticket to Washington, DC	Blue Lion	128K	H/C/E	x	5 1/4, 3 1/2, AV	\$44.95
Tom Throop's Bridge Baron II	Great Game Products	128K	H/C	x	5 1/4	\$49.95
Triango	California Dreams	256K	H/C/E	J, M	5 1/4	\$39.95
Vegas Craps	California Dreams	256K	H/C/E	J	5 1/4	\$39.95
Vegas Gambler	California Dreams	256K	H/C/E	J	5 1/4	\$39.95
Vegas Video Poker	Applications Plus	128K	C/E	x	5 1/4	\$29.95
Video Vegas	Baudville	256K	C	x	5 1/4 or 3 1/2	\$34.95
Wheel of Fortune	ShareData	256K	H/C	x	5 1/4, 3 1/2, AV	\$12.99
Wheel of Fortune, Second Edition	ShareData	256K	H/C	x	5 1/4, 3 1/2, AV	\$14.99
Where in Europe is Carmen Sandiego?	Broderbund	256K	C/E	J	5 1/4 or 3 1/2	\$44.95
Where in the USA is Carmen Sandiego?	Broderbund	128K	C	J	5 1/4 or 3 1/2	\$39.95
Where in the World is Carmen Sandiego?	Broderbund	128K	C	J	5 1/4 or 3 1/2	\$39.95
Windows Backgammon Deluxe	E.F. Dickey	25K	Microsoft Windows	x	5 1/4 and 3 1/2	\$28.95
Word Hunt	ComputerEasy	128K	H/C	x	5 1/4	\$9.95
Wordsearch 2000	ComputerEasy	128K	H/C	x	5 1/4	\$9.95

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Bountiful, UT 84010

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Suite #200
San Jose, CA 95128

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201 West Springfield Avenue,
Suite 711
Champaign, IL 61820

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3885 Bohannon Drive
Menlo Park, CA 94025-1001

**Addison-Wesley
Publishing Company**
Route 128
Reading, MA 01867

Applications Plus Inc.
15720 Harmony Way
Apple Valley, MN 55124

Arcadia
711 West 17th Street, Unit G9
Costa Mesa, CA 92627

**Artworx Software
Company Inc.**
1844 Penfield Road
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Avalon Hill Game Company
4517 Harford Road
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Grand Rapids, MI 49508

Blue Chip
345 Fourth Street
San Francisco, CA 94107

Blue Lion Software
90 Sherman Street
Cambridge, MA 02140

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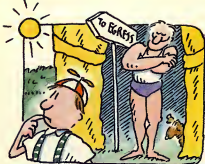
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WHAT I DID ON MY SIMULATED VACATION

Hey, don't get me wrong, I love a vacation as much as the next guy. Maybe more. But with the workload that piled up this summer, I just couldn't see any way to take time off.

That's why I did a little something different this year. I figured that if you can simulate just about everything else in life, why not your vacation? So this past summer I went into my basement office, closed the door, and embarked on a simulated vacation.

Simulating your vacation has its advantages: no crowds, traffic jams, parking problems, kamikaze drivers, lost reservations, or cardboard food. I avoided the tacky motels and tackier fellow vacationers. And I didn't lose any time from work. I just went home, poured myself a beer, and spent a couple of hours at the computer every night.

I started this junket by loading *Baron*, the real estate simulation, and buying myself a little hideaway. Nothing fancy, just a quiet little cabana on the Pacific coast. I got it for a great price, and I'll probably make a bundle when I unload it.

That settled, I next took down *Test Drive*, jumped in a Lamborghini Countache, and hit the freeway. Just as I could smell ocean air I saw the blue lights in the rear-view mirror. (Oh well, can't let one speeding citation spoil your whole vacation.) After arriving at my retreat, I settled in for the night, started up *TellStar*, and just stared at the stars.

The days flew by in a blur. Freed of the usual considerations of time, distance, weather, ex-

pense, embarrassment, and danger, I tried things I would never attempt on a real vacation. For instance, take golf; I still remember my one attempt at golf and the look on my stoical friend Steve's face as I merrily hooked my (actually his) eleventh consecutive ball into the river. But using *World Class Leader Board*, I actually found myself enjoying the game. Sure I plunked just as many in the drink, but this time they came out with the touch of a key.

Water sports were never my forte, since my swimming abilities are roughly equal to my flying

**If you can simulate
everything else in life,
why not your
vacation?**

abilities. Yet with *Dolphin Sailing Simulator* I could navigate a 29-foot sloop without getting wet or having my skull caved in by the boom. And when it went on the rocks, all I had to do is restart the program. *California Games* got me to try simulated surfing, and thanks to *World Games* I was even able to go cliff diving in Acapulco—and live.

I like baseball but seldom get to a game because of problems getting tickets. Ah, but not this year. On my simulated vacation, *Earl Weaver Baseball* let me choose the teams I wanted to see, and pick the park besides. Better still, instead of just watching the game, I had the option of managing the

team or playing on it.

There was always something to do, from bowling a couple of games with *10th Frame*, to burning up the track with *Drag Race Eliminator*, to killing time at the arcade with *Pinball Wizard*. And after a hard day's play, I tested my vocabulary with *The New York Times Crossword Puzzles*, tested my knowledge with *Millionaire*, or tested my integrity with *Solitaire Royale*.

I even found time to catch up on some reading. I never finished J.R.R. Tolkien's "Lord of the Rings" trilogy, but I knocked off the software series (*The Hobbit*, *The Shadows of Mordor*, and *The Fellowship of the Ring*) in just three nights.

When I got back from my simulated vacation, I felt rested, refreshed, and ready to go back to work—and I hadn't even been gone. I also felt richer. Last year's vacation cost me \$246 for lodging, \$57 for gas, \$166 for food, \$119 for equipment, \$29 for souvenirs, and \$52 for beer, for a total of \$669. My simulated vacation, by contrast, cost me \$644 for software but only \$24 for beer, totaling just \$668. What a deal!

I'm already looking forward to a simulated winter vacation. There's a little ski condo I've got my eye on, and *Winter Games* looks like just the ticket to break up the cold weather doldrums. Trouble is, my wife has threatened to take our real children and move out of our real house if I take another simulated vacation. Anybody know where I can get a simulated family?

—Bud Sadler

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